Blended Learning in Higher Education in Saudi Arabia:

A Study of Umm Al-Qura University

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

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Dedication

I gratefully dedicate this thesis to my father and mother for their unlimited care, support and prayers through my studies including my PhD.

To my lovely wife, Hamidah, for her devotion, patience, and encouragement during times of my study.

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Glossary

CITC	Communications and Information Technology Commission
GCC	Gulf Cooperation Council
KACST	King Abdulaziz City for Science and Technology
ICT	Information and Communications Technology
ITTSC	Information Technology and Technical Support Centre
UQU	Umm Al-Qura University
LMS	Learning Management System
WBI	Web-based Instruction

Abstract

Higher education came late to Saudi Arabia and the country is moving swiftly to adopt international standards in pedagogy, specifically in student-centred learning models. As part of these development programs, the internet is being introduced to add course flexibility for university instructors and their students. This is a form of blended learning, and this thesis explores the experiences and views of the instructors and students at Umm Al-Qura University in Makkah regarding instructor websites used as a supplement to attendances at lectures and tutorials.

This research investigates instructor websites from different perspectives. Makkah hosts the Islamic *Hajj* every year, when the population can triple and for a month, transport is difficult. Further, women may not move freely alone in public, and education in Saudi Arabia is strictly segregated. A blended learning concept therefore has appeal, with its potential to both increase students' interaction with the instructor and facilitate class communication. This study employs a mixed methods approach, interviewing instructors who used websites on the university portal, and surveying their students through questionnaires.

The findings of this study indicate that the instructor websites, although at various stages of development, provide better learning experiences, and improve class communication and interaction. Participant students reported that the websites were useful for communication and enhanced interaction with their instructors, and that they used the websites for course administration, and access to lecture and revision material. Female students reported greater approval of the websites than their male cohorts, preferred instructor websites' content, and considered that the websites had a greater effect on their learning, communications and interactions.

As the instructors developed and maintained their websites, there was a linkage between the site content and benefits to curriculum delivery style. The findings are that instructors can use their lecture time effectively, conduct trial exams, and introduce other curriculum delivery options. The study concludes that instructor and students valued the accessibility and flexibility advantages of blended learning design.

The findings also identify resource factors that, given the pace of technological change, may be endemic and affect the adoption of blended learning at the university. Participants reported concerns regarding the university's inadequate ICT infrastructure, resources, and technical support. Students added that there appeared to be a lack of commitment and reward for ICT use at the university.

The study concludes that blended learning in Saudi universities has the potential to improve the universities' performances in terms of quality and efficiency. Blended learning is useful to increase communication and interaction between students and instructors, which in turn would result in better learning experiences. This is especially true in a gender-segregated society. A major conclusion is that the implementation of blended learning in Saudi higher education requires a radical shift in the educational system, including changes to policy, curriculum, infrastructure, and university culture. The development should involve instructors, students, and administrators.

Chapter 1 Introduction

Information and communication technologies (ICT) permeate everyday life: computers, smart phones, tablet personal computers, entertainment devices. The widespread use of technology, particularly in the last decade, has led to a re-evaluation and redesign of traditional practices, and attitudes, not only to explore the opportunities that ICT create, but also for countries to remain competitive and relevant in contemporary society. Saudi Arabia is a case in point. The Kingdom adopted ICT later than more developed economies, confronting challenges of providing sufficient infrastructure for its widespread population on the one hand, and a traditionalist people on the other. Whilst the government was still connecting the nation with ICT cabling and its associated infrastructure, the last five years have witnessed a remarkable change in the population as wireless technologies came on stream, so that the Kingdom leapfrogged stages of ICT development through the advent of mobile devices. Nevertheless, the adoption of current technologies by Saudis is a challenge for the government, as the younger members of society embrace social networking, and conservative sections of the community require encouragement to utilise online services. The adoption and exploitation of ICT in education is fundamental to the Saudi government's objective for computer literacy of the population.

As part of the knowledge economy, and to deliver services efficiently to larger populations and more educated citizens, governments are investing heavily in internet-based resources (Jaffe, Trajtenberg, & Romer, 2002). In tertiary education, ICT has long been a part of the pedagogical methodology, as it is another means of delivering text and audiovisual course materials. This includes the internet, an especially dynamic ICT system that emerged in the 1990s, providing a powerful and dynamic medium for sharing information (Khan, 2005). Pedagogy is changing, adding flexibility and interactivity to learning environments (Su, Bonk, Magjuka, Liu, & Lee, 2005). This study seeks to investigate the change in the emerging field of blended learning in Saudi Arabia.

The study is concerned with the perspectives and experiences of the faculty members and students at Umm Al-Qura University (UQU) in Makkah, Saudi Arabia, as they explore the use of instructor websites as a supplement to the traditional face-to-face

delivery of the curriculum. This introductory chapter commences with definitions of key terms, presents the emergence of blended learning, and then presents the rationale, purpose, and significance of the study. The chapter includes the research questions, an overview of the methodology and the structure of the thesis.

1.1 Definitions

There are number of terms used in this study that require specification. These are explained to facilitate the reader's understanding of this thesis.

Online Learning: Also known as e-learning, this refers to the use of electronic or digital technologies such as computers, CD-ROM, intranets, and the internet to deliver educational content, that is, web-based instructions. In this study, online learning involves 'the separation of teacher and learner during at least a majority of each instructional process' (Palloff & Pratt, 1999, p. 5).

Blended Learning: The majority of definitions have a combination of face-to-face and online instructions. According to Graham (2006, p. 5) blended learning is 'the combination of instruction from two historically separate models of teaching and learning: traditional face-to-face learning systems and distributed learning systems'. Graham's definition is adopted for this study, as it simplifies the concept, allowing flexibility that is necessary as blended learning in Saudi Arabia is at an early stage.

Interaction: Wagner (1994) provides a definition of interaction used in this study. She defined interactions as:

> reciprocal events that require at least two objects and two actions. Interactions occur when these objects and events mutually influence one another. An instructional interaction is an event that takes place between a learner and the learning's environment. Its purpose is to respond to the learner in a way intended to change his or her behaviour toward an educational goal (p. 8).

Three types of interaction (student-student, student-instructor, and student-content) described by Moore (1989), as the more common types of interaction are employed herein. As communication is the heart of most educational interactions (Garrison & Anderson, 2003), communication and interaction have been used interchangeably in this study.

Instructors: Instructors in this study are the faculty members who developed their individual websites to supplement their classroom instruction.

Higher Education: Also known as tertiary education, this term refers to education after year 12 school and includes institutions that provide training (certificates and diplomas) and education (bachelor, masters, and doctoral degrees). In the educational context, the Umm Al-Qura University at Makkah, Saudi Arabia, is the case study for this research.

1.2 Blended Learning

The evolution of pedagogy and curriculum design involves educationalists and researchers exploring theoretical and practical pathways, especially with opportunities offered by the internet. This is no more evident than in tertiary education, with infrastructure, pedagogy and curriculum development, not only for higher education, but for other sectors such as training and industry (Littlejohn & Pegler, 2007). The introduction of online learning delivery systems increased access and flexibility in the curriculum, enhancing communication and the learning experience, however, there are issues with fully online courses in relation to the lack of social contact, choices, and engagement (Singh, 2003; Holley & Oliver, 2010).

The concept of blended learning refers to the pedagogical paradigm of a proactive student focus on curriculum delivery, rather than as a passive observer present at a lecture. Using the strengths of online and face-to-face learning, blended learning curriculum delivery uses these concepts to combine the relative advantages of both environments and research shows that blended learning delivery is increasing in higher education (Chandra, 2004; Garrison & Vaughan, 2008; Graham, 2006; Picciano, 2009). There are several options in designing a blended learning curriculum and institutions implement this form of learning for different reasons and use different curriculum designs. Draffan and Rainger (2006) nominate lectures, workshops, online collaborative activities and interactive multimedia in the blended design mix.

Blended learning may have different meanings to different people (Matheos, Daniel, & McCalla, 2005), whilst Allan (2007) states that there is agreement that the pedagogy is ‘a mixture of face-to-face and e-learning’ (p. 4). For the purposes of this study, Graham’s (2006) definition is adopted, as it is general and overlooks the complexity of blended learning (Stacey & Gerbic, 2009). Other definitions and terms beyond the scope of this study are discussed in Chapter 3, literature review.

As a logical development from both face-to-face and online learning, Garrison and Vaughan (2008, p. 5) indicate that

> (b)lended learning — a design approach whereby both face-to-face and online learning are made better by the presence of the other — offers the possibility of recapturing the traditional values of higher education while meeting the demands and needs of the twenty-first century.

The authors claim that blended learning is a fundamental redesign of pedagogical practices. In blended learning design there is a paradigm change in which the emphasis is more on learning than on teaching (López-Pérez, Pérez-López, & Rodríguez-Ariza, 2011).

Pedagogy can be transformed towards more active learning with wider use of learner-centred approaches through blended learning curriculum delivery (Garrison & Vaughan, 2008; Nunan, George, & McCausland, 2000). There are other mixed effects. Vaughan (2007) noted that facility usage can be increased if a greater number of students can be accommodated with less campus attendances, Garrison and Kanuka (2004) and Garrison and Vaughan (2008) reported challenges and complexities in administration, and in development of blended courses. These include changes to university policies, infrastructure planning, allocation of resources, scheduling training and implementation, and technical support (Garrison & Kanuka, 2004).

Over the last few years, the Saudi higher education system commenced adoption of blended learning delivery as a means of improving quality and capability of its institutions (Alebaikan, 2010). Blended learning is still in its formative stages in the country, and there is ambiguity regarding conceptualisation of the delivery systems such as blended learning and e-learning (Alebaikan, 2010). Further, the majority of Saudi universities, including UQU, added blended learning applications merely to supplement their traditional delivery in the lecture halls, without a comparable reduction of attendance requirements for students or their lecturers. As such, a clear policy for blended learning delivery is required, and this study contributes to the debate on blended learning in Saudi higher education. The study explores the potential for blended curriculum designs for undergraduates in the Saudi higher education context. This research investigates gender-segregation issues and the development of the ICT sector in Saudi Arabia to identify the factors that may affect the successful implementation of blended learning in the universities.

In curriculum design, internet opportunities range from research to information, and the free flow of ideas. Arguably, these can be merged in the concept of a faculty member's website, where course administration and curriculum content such as lecture notes, presentations and optional references can be posted (Woods, Baker, & Hopper, 2004). Importantly, such a site can also be used for queries and information requests to the instructor, and perhaps a discussion site for students to compare experiences and ideas on the course topics (Davidson-Shivers & Rasmussen, 2006). In this study, blended learning involves instructors' individual websites developed to supplement face-to-face curriculum delivery with online course content and activities. At the time of the study, UQU had no specific Learning Management System (LMS) such as Blackboard or WebCT. The university offered financial and technical support for the instructors who adopted an online component as part of their course content, however, their existing duties and student-faculty face-to-face hours remained unaltered. Graham (2006) describes this approach as an activity-level blend. Importantly for a study concerning Saudi Arabia's strict gender segregation, the instructor participants in this study were male, however, their students were of both genders. Thus the research sample adds to the significance of this study, as interactions and communications between Saudi male instructors and female students are limited.

1.3 Rationale for the Study

Whilst the empirical literature is growing regarding the experiences of Saudi Arabia in its rapid socio-economic development, the pace of change might make research findings redundant. However, this study concerns the emergence of new delivery system in Saudi higher education, that is, blended learning. Thus, the grounds for conducting this study are to investigate government policies on blended learning, and the ability or attitude of the Ministry of Higher Education and UQU administration and faculty in delivering the government's objectives. The other aspects relate to the nature and characteristics of blended learning in a gender-segregated environment and to analyse the data and make recommendations to allow the advantages of ICT in blended learning to flow through to UQU.

Although with the substantial continuing expansion of Saudi universities, higher education sector in Saudi Arabia faces several challenges, including accommodation of student numbers, gender segregation, lack of faculty members, and inadequate

resources. The population in Saudi Arabia is growing rapidly, and over 60 per cent are under the age of 25 years. With women as a majority, the number of students in Saudi universities increased 75 per cent in just three years from 110,000 in 2006 to 193,565 in 2009 and the number of public universities has increased significantly from eight universities in 2004 to 24 universities in 2010 (Ministry of Higher Education, 2010a). Most universities now offer undergraduate and postgraduate degrees, and accept all Saudi students. Further, Saudi Arabia is a large country and smaller communities are often isolated from urban centres and universities. The establishment of new universities across the country's regions therefore enhances free higher education access to the majority of Saudi citizens. In a traditionalist and rich society, Saudi higher education offers unique circumstances that suggest that in higher education, curriculum delivery using blended learning is a rational choice. The increase in student numbers, coupled with an inadequate number of qualified instructors in Saudi universities has lead to a situation where the traditional system is unable to respond, and there is insufficient time and commitment by the universities to plan and build for the future. Thus, an initiative leading towards blended learning is promising. This study aims to take one aspect of this initiative, instructors' websites on the UQU's portal, and determine its usefulness and influence on teaching and learning.

Due to legal and religious tenets, male and female students are separated at all levels of education. In higher education, because of the lack of female instructors, male instructors can teach female students through one-way video conferencing. In such learning environments, the lack of interaction and communications is obvious. In fact, gender segregation in Saudi Arabia underpins the majority of the issues in higher education. Moreover, besides the expansion of Saudi higher education facilities, faculty and curricula, the Ministry of Higher Education seeks quality and efficiency improvements for its considerable investments. In the last two economic five-year development plans (8^{th} 2005-2009, and 9^{th} 2010-2014), there is a particular emphasis on objectives and expenditure regarding the educational sector's quality and efficiency. Among many policies and recommendations, Saudi universities are directed and resourced to increase ICT in teaching and learning to reach international standards for their graduates and to increase their functional capacity (Ministry of Higher Education, 2010b). To meet this demand, the Saudi ICT industry was privatised early in the decade, and the immediate take up of mobile devices illustrates the improvement in internet

access and reduction in prices the country now enjoys. Notably, the Ministry of Higher Education introduced blended learning as its preferred approach in 2006 and established the National Centre for E-learning and Distance Learning

> to allow creating unique educational environments, which contribute in building a wide range system to what is known as Blended Learning, to fulfil the needs of Higher education in the kingdom and spread the e-learning centres in the region. (National Centre for E-learning, 2010, p. 3)

Another reason for this study is that blended learning has the potential to overcome some of the higher education issues in Saudi Arabia (Garrison & Vaughan, 2008). Whilst the online component of blended learning can be adopted in any public Saudi university, it also exposes the faculty to free open course delivery by major world universities. Students can compare their course material to that being delivered by world-class universities. Snart (2010) noted that the practical benefits of online delivery of blended learning approaches included managing increased enrolment, provide better usage of facilities by reducing lecture schedules, respond to organisational objectives to increase ICT services, and improve student retention and outcomes. Similarly, Graham (2006) summarised blended learning advantages as facilitating teaching and learning; increasing student access and flexibility, and organisational cost-effectiveness.

Further, there is a personal experience that influenced a commitment to blended learning. Participating in a blended learning environment during study at Monash University in Australia, the researcher had the experience of undertaking a course as a student for whom English was a foreign language. As the language of instruction was English and the researcher was an overseas student, blended learning offered opportunities to ask and respond effectively via online communication technologies. The integration of online learning applications facilitated his understanding and engagement in the blended courses. This in turn influenced this researcher's satisfaction and motivation. Therefore, it is of interest to know more about the blended designs and how the teaching and learning strategy can be implemented in the Saudi context.

1.4 Purpose of the Research

The purpose of this study is to investigate the experiences and views of the faculty members and undergraduate students at UQU who participated in blended learning environments. The study aims to

- identify the benefits and challenges in implementing blended learning at UQU from the viewpoints of both students and instructors
- examine the influence of blended learning curriculum delivery designs on the communications and interactions between students and instructors
- examine the advantages and disadvantages of instructor websites as reported by students and instructors
- examine the differences between male and female students in their perceptions of blended learning at UQU
- determine the factors that may affect the adoption of blended learning at UQU
- contribute to the evolution of pedagogy in Saudi universities that relates to the student's ability to construct knowledge
- provide recommendations on blended learning implementation to enhance the quality of interactions, teaching and learning at Saudi universities.

1.5 Research Questions

The main research question is: How do instructors and undergraduate students at UQU perceive the implementation of blended learning? There are six secondary research questions that guide this study.

Q1: How useful do instructors and their undergraduate students at UQU find blended learning environments?

Q2: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the instructor and student interactions?

Q3: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the learning quality?

Q4: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the teaching quality?

Q5: How do male and female students differ in their perceptions of blended learning at UQU?

Q6: What are the factors that affect the adoption of blended learning at UQU?

1.6 Research Methodology Overview

At the epistemological level, this study can be seen as a constructivist or interpretive research (Guba & Lincoln, 2004; Mackenzie & Knipe, 2006; Mertens, 2005). The philosophical assumptions of pragmatism support the integration of both qualitative and quantitative methods in this study (Mertens, 2005; Morgan, 2007). A pragmatic paradigm supports the mix of quantitative and qualitative methods, while it can be used within other paradigms such as transformative and constructivist (Mertens, 2005; Mackenzie & Knipe, 2006; Teddlie & Tashakkori, 2009).

A triangulation mixed methods design was employed in this study to obtain data-rich responses. Mixed methods research is recognised as a valid research approach that provides understanding and a wider picture of the phenomenon under study (Creswell, 2009; Johnson & Christensen, 2008). In this study both quantitative and qualitative data were collected concurrently. In the triangulation design, the researcher aimed to achieve greater validity through studying the corroboration between quantitative and qualitative data (Creswell, 2009; Teddlie & Tashakkori, 2009). This design is therefore appropriate in this study to determine convergence of perspective and corroboration of results from the perspectives of instructors and students.

As blended learning was new to UQU at the time of the study in 2009, and not all students and instructors were making use of such an approach, the study sample was confined to instructors and students who were actively participating in blended learning environments. A purposeful sampling technique was used to select the participants in this study. The instructor participants were also selected based on the quality of their websites and their students volunteered to complete a questionnaire. The researcher developed an evaluation checklist based on the study's objectives to facilitate the selection of the potential sample. The sampling procedure yielded a total of nine instructors and 504 undergraduate students from the eight colleges who participated in

this study. Semi-structured interviews were conducted with the instructors, and self-administered questionnaires were distributed to their male and female undergraduate students. Details of the research methods and data analysis are in Chapter 4.

1.7 Significance of the Study

As blended learning is in its early stage in the Saudi university environments, this study is a contribution to research through identifying causes and themes that can influence blended learning as a means of delivering curricula in Saudi Arabia. The study emphasises the challenge of gender segregation in Saudi higher education and the means by which blended learning can contribute to this issue. It is the first study which investigates the perceptions of male and female students with their male instructors towards the impact of blended learning on their learning experiences. This study also contributes to the framework, principles, and guidelines for effective implementation of blended learning in the Saudi universities.

The study further contributes to knowledge for theoretical and practical aspects of blended learning design. Theoretically, the study assesses the literature findings that explain the impact of blended learning design on the quality of teaching and learning. In particular, the study illustrates how blended learning design can enhance interactions in the learning environment. The study concludes with recommendations and implications of how blended learning can be implemented to enhance teaching and learning in Saudi higher education.

The research findings have potential value for policy-makers, instructors, curriculum designers and administrators in public higher education. The study provides an evaluation of the benefits, influences, challenges, and future professional development needs of blended learning in Saudi Arabia. This study provides insight on the motivation and engagement of students and instructors to create effective blended learning environments that enhance their interactions, teaching, and learning.

Moreover, this study aims to contribute to the evolution of pedagogy in Saudi universities that relates to the student's ability to construct knowledge. Constructivist views remain part of current educational constructs and are relevant to the Saudi experience. This study intends to introduce the implementation of blended learning as a means of developing constructivist learning environments.

1.8 Scope of the Study

The aim of this research is to contribute to the development of blended learning in Saudi higher education and comprises a case study of UQU with participants limited to Makkah campuses. The study was conducted during the second half of 2009. The exploration of blended learning in this study was limited to the use of instructor individual websites at UQU, as there was no official learning management system. Participants in this study include nine male instructors and their male and female undergraduate students. The participants were limited to those who had access to, and use of, the instructor websites connected to the university portal.

The main purpose of the study is to explore the perspectives of students and instructors towards blended learning environments. This study focuses on the students' and instructors' views on the effectiveness of blended learning designs at UQU and does not attempt to evaluate the outcomes from the instructors' website use. In particular, the study aims to demonstrate the influence of blended learning on students' and instructors' interactions and thereafter on learning and teaching.

1.9 Structure of the Thesis

This thesis is composed of eight Chapters, as follows

Chapter 1 presents a background of the study, rationale for the study, its objectives, research questions, and the significance of the study. Chapter 2 provides an overview of the study context, including the people, culture and religion, national development, challenges, and increased use of ICT in education. Chapter 3 reviews the literature in the following dimensions: the development of learning theories, higher education and ICT impact, the concept of blended learning, benefits and challenges of blended learning. Chapter 4 describes the methodological approach for this study, sampling procedures, methods development, data collection, and the analysis procedures. Chapters 5 and 6 present the quantitative data analysis and the qualitative data analysis, respectively. Chapter 7 discusses and interprets the study findings, whilst Chapter 8 concludes the study and makes recommendations for blended learning in Saudi universities. This chapter also includes the advantages and limitations of this study and suggests areas for future research.

1.10 Summary

The purpose of this chapter was to present the depth and breadth of the research study that investigates instructors' websites in a blended learning approach. It is argued that whilst Saudi Arabia's traditionalism and gender inequity is unique to the country, this study focuses on innovation in addressing educational policy. There are other countries that may have seemingly similar issues that administrations can adapt the findings and recommendations of this study in innovative ways: for remote populations, disabled citizens, or life-long learning, where graduates require further education or training. The next chapter places the research in context and presents the geography, history, economy, religion, and demographics of UQU's faculty and students.

Chapter 2 Study Context

Historically, the Arabian Peninsula was a place of learning, and early migrations and settlements date back to the third millennium before the Christian era. The Prophet Mohammad united the peninsula and established a seat of learning in Makkah in the seventh century, CE. Since then, learning took place in *maktabs* (small local schools) described first by Ibn Sina in the eleventh century, and *madrasahs* (places of learning) held in mosques to study the Quran (Asimov & Bosworth, 1998). After the formation of the Kingdom of Saudi Arabia, schools and institutes for higher education became available to all Saudis; government education is free.

This chapter presents an overview of education in Saudi Arabia, commencing with a profile of the country, its environment, people, and culture. The rapid growth in education over the last half-century is explained, and the evolution of higher education from a pedagogy focused on rote learning to one where the learner explores the world through technology. Part of this evolution of learning systems was thus the adoption of new media, and the concept of blended online learning emerged as a means of fulfilling increased demand for higher education. This was no less evident across the country than at Umm Al-Qura University in Makkah where this study has been conducted. Within this chapter are details about the university: its history, development, challenges, ICT integration, and online learning. As technology is a focus of this study, the status of infrastructure and the level of acceptance in the Saudi population are described. The chapter concludes by drawing these themes together through a brief summary of ICT in higher education, particularly the internet, web-based instruction, and blended online learning.

2.1 Saudi Arabia

To place this research in context, a profile of the country is presented. This includes the physical environment, Saudi demographics, the monarchy and the structure of the government, and the pace and extent of economic development. These characteristics broadly determine the framework for the study, especially the impact of

rapid development of ICT and education sectors. The section is completed with a brief description of Saudi society, Islam, and Arabic tradition.

The Kingdom of Saudi Arabia is strategically located in the southwest corner of Asia at the crossroads of Africa and Europe, and at 2,150, 000 km^2 occupies almost 80 per cent of the Arabian Peninsula. The country is taking its place in world affairs, linked through its vast oil reserves to the global economy and its continuing rapid socio-economic development (Wynbrandt, 2010).

Source: Saudi Network, n.d.

Figure 2.1 *Map of Saudi Arabia*

2.1.1 Geography

In size, Saudi Arabia is the largest country in the Middle East and fourteenth in the world. Saudi Arabia is generally hot and dry, consisting of semi-desert and desert

with oases. The Kingdom's northern borders include Jordan and Iraq. With the exception of Yemen to the south, Saudi Arabia's neighbouring countries are also members of the Gulf Cooperation Council (GCC), Kuwait to the north, and to the east, Qatar, United Arab Emirates and Oman. Bahrain, an island, is directly connected to Saudi Arabia. Saudi Arabia is divided into thirteen provinces: Makkah, Medina, Riyadh (which includes the capital), Eastern Province, Northern Province, Asir, Al-Baha, Hail, Al-Jouf, Jizan, Najran, Tabuk and Al-Qassim. The country's 13 provinces each include a number of governorates and cities. Riyadh City is the capital of Saudi Arabia, and there are other large cities such as Jeddah, Makkah, Dammam, and Medina (Saudi Network, n.d.).

With an annual precipitation of only 100 mm, almost half the country is uninhabitable. Along the west coast are the Hijaz Mountains to the north of Jeddah and Asir to the south, rising to mountains above 2,000m in the southwest, an area known for its green and fresh climate. *Najd*, meaning 'plateau', occupies the centre of the peninsula, and to the east area is lowland. In the summer, the desert climate is very hot during the day and mild during the night; the coastal cities are hot and have high humidity. In the winter season, the climate is cooler. The central capital, Riyadh, has an average temperature of 42°C in July and 14°C in January. In contrast, Jeddah on the western coast has averages of 31°C in July and 23°C in January (Shwehdi, 2005). There is no permanent surface water in Saudi Arabia, although there are large aquifers which appear as oases. Less than two per cent of the land is suitable for cultivation, and the population distribution varies from the cities on the east and west coasts, the densely populated interior oases such as Riyadh, and the vast deserts, such as the Rub'al Khali (The Empty Quarter), the Arabian Desert and East Sahero-Arabian scrublands (Wynbrandt, 2010).

2.1.2 Demographics

The Saudi population comprises Saudis and expatriates, generally labourers. Figures are approximate, and growth shows the effects of the previous generations' high birth rates, now declining, and an expatriate population whose numbers reflect the massive construction across the country. Table 2.1 presents a comparison of the latest estimates for 2011, compared with those for 1995.

Table 2.1
Demographic Indicators

Indicator	Year	
	2011*	1995
Population		
Midyear population (in thousands)	26,132	18,755
Expatriates within population (000s)	5,576	6,250
Growth rate (percent)	1.5	2.9
Fertility		
Total fertility rate (births per woman)	2.3	5.0
Births (in thousands)	505	568
Mortality		
Life expectancy at birth (years)	74	71

Source: U.S. Census Bureau, International Data Base
* Predicted

Given the issue of accuracy of the demographic statistics, which is a priority for the GCC administration, reliable estimates are not available for planning for socio-economic infrastructure. In 2009, the Ministry of Economy and Planning (2010a) estimated that male Saudi nationals comprised 66 per cent of the country's male population, and female Saudi nationals as 81 per cent of the female population, and the total nationals as 73 per cent of the total population. As well, 29 per cent of the country's population were under 15 years, that is, 7.7 million children, male and female. The 2010 Census, according to the detailed results of the Population and Housing Census, showed a total population of 27.1 million. Over 60 per cent of the Saudi population is under the age of 25 (Ministry of Economy and Planning, 2010a). According to a national demographic survey in 2007, Makkah Al-Mokarramah was the largest region with a population of over six million (Central Department of Statistics and Information, 2010). The region includes three large cities, Jeddah, Makkah, and Taif. This study was conducted in Makkah, the holy city and second largest city in the province.

For the purposes of this study that focuses on young Saudi adults, the population profile is therefore about 27 million, with some 6.75 million expatriates, a mild Saudi growth rate (99th from 223 nations, between Argentina and South Africa), and broadly,

some 10 per cent of Saudis in tertiary education with an average education period of 14 years (World Factbook, 2011a). Another factor relevant to this study is that Arabic is the official language of the country, although English is increasingly popular. Students start learning the English language from grade six.

2.1.3 Government Structure

The Kingdom of Saudi Arabia was founded in 1932 by Abdulaziz Al-Saud. It is an absolute monarchy and its Constitution is based on the *Qur'an* and *Shari'ah* law. All citizens are Muslim. Since the two holy cities of Makkah and Medina are located in Saudi Arabia, the country holds special standing in the Muslim world. Makkah City is the birthplace of the Prophet Mohammad and the focal point of *Hajj*, in which over three million pilgrim Muslims from around the world participate annually (Al-Rasheed, M., 2002).

Currently, the King is Abdullah Bin Abdulaziz, entitled Custodian of the Two Holy Mosques. The *Majlis Al-Shura* (Consultative Council) advises the King in his position as Prime Minister, and it is now composed of 150 prominent members of Saudi commercial, political, and religious society. The Shura Council's primary function is to assess, interpret, and modify the Kingdom's system of laws, by-laws, contracts, and international agreements; it can also initiate legislation (Al-Rasheed, M., 2002).

The Council of Ministers advises on general policy and directs the activities of the public sector departments and organisations. The council consists of the King as Prime Minister, as noted, the deputy Prime Ministers, and 20 Ministers. Legislation is by resolution of the Council, ratified by the Consultative Majlis Al-Shura and royal decree, and must be compatible with the *Shari'ah Islam'iah*. The administrative regions are each governed by an Emir appointed by the King. The governor is assisted by a vice-governor and a provincial council of departmental officers and a ten-member municipal council of prominent citizens who are appointed to four-year, renewable terms (Al-Rasheed, M., 2002). In 2005, elections were held for half the members of 258 councils. A further election, confined to Saudi males, will be held in September 2011 (Al-Rasheed, F., 2011).

2.1.4 Economy

The Saudi economy is based on oil, which was found in the eastern provinces and exploited from the mid-20th century. The economy of the Kingdom is therefore susceptible to the global economy, and the country's rapid socio-economic development was disrupted in the 1970s and 1980s with oil price shocks. Ramady (2010) noted that the government's economic reform platform changed from a luxury to be pursued in good times, to a 'strategic necessity driven by globalization pressures and a willing political choice' (Ramady, p. xv). Of interest to this study, Ramady stated that the priority for the rapid diversification of the economy remains the need to provide jobs for the young educated workforce, and to ensure that the range of reforms are acceptable to the population and adopted by society.

As the Saudi economy grows at around 4.5 per cent, Kasser (2011) reported that the private sector from which job growth is expected grew at 3.7 per cent in 2010, although it contributes less than half (47.8%) of gross domestic product (GDP). Oil revenues contribute some 80 per cent of government revenue, supplying 28 per cent of the Organisation of Petroleum Exporting Countries' oil production. Kasser also noted the government's priority of diversification, and its ability to continue expenditure to facilitate growth during the economic crisis. Saudi Arabia's Ninth Development Plan (2010-2014) provides for a comprehensive socioeconomic vision to be achieved by 2024. The plan provides an overall framework for development up to 2014, and for the purposes of this study addressing private sector diversification, ICT, and the economic, social and cultural impact of globalisation.

2.1.5 Social and Religious Influences

As noted, Saudi Arabia is the birthplace of Islam and contains the Two Holy Mosques of Makkah and Medina, thus society in Saudi Arabia is strongly influenced by Islam, and all Saudis are Muslim (Alebaikan, 2010; Al-Saggaf, 2004; Oyaid, 2009). Saudi citizens regard Islam as a comprehensive system that provides detailed prescription of personal, social, and business practices (Al-Munajjed, 1997). Al-Saggaf (2004, p. 1) states that 'Islam plays a central role in defining the culture, and acts as a major force in determining the social norms, patterns, traditions, obligations, privileges and practices of society'. However, there are also Arab traditions in society, such as the

role of women as housekeeper for their husbands and carers of their children (Al-Munajjed, 1997; Alhazmi, 2010).

For legal and religious reasons, interactions are restricted between men and women who are unrelated or unmarried, that is, the genders as defined by these criteria are not permitted to mix. This is a general rule that applies to education, business, public transport, and social situations such as restaurants (Alhazmi, 2010; Al-Munajjed, 1997). This restriction of interactions also can reflect on the online interactions to some extent (Al-Saggaf, 2004). Women must wear the *hijab* (covering the face and body) when outside the house, and they should avoid unnecessary conversations with unrelated men (Alebaikan, 2010). Moreover, women are not permitted to drive cars or have driver licences at the time of writing. Thus segregation of the genders influences all aspects of life in Saudi Arabia, including education (Alebaikan, 2010; Oyaid, 2009).

2.1.6 Summary

In this section, the physical profile of Saudi Arabia is described so that the elements of this study may be contextualised. Saudi Arabia is a country taking its place amongst other international decision makers; it is rich, with a young population. However, it faces challenges of rapid socio-economic development that require an educated and well-informed citizenry to provide the leaders and professionals to maintain a competitive position in the global economy. Further, a social restructure is taking place for job-seekers as the country moves from an emerging economy and a paternalistic government towards a private sector that expects high standards of commitment and productivity. That is the basis for Saudi Arabia's significant continuing investment in education, which is described in the next section.

2.2 Education

Education is the cornerstone of the Saudi government's drive to diversify its economy and provide jobs for its citizens. However, universal education for all Saudis dates back only a few decades, and the government's resources were previously restrained by the need to build modern cities on the fluctuating fortunes of the oil prices and security crises to the north and east. The education of girls earlier met with resistance from the powerful religious elite, and entry to higher education by performance has been in place for only a few decades.

Education, as noted in Section 2.1.6, is gender-segregated at all levels so that boys and girls are educated at separate locations; and this is arguably the greatest educational barrier for the country. Oyaid (2009) asserts that the Islamic code of behaviour dominates society. Girls' schools are staffed by women, boys' schools by men. As an example of these issues, there are insufficient women lecturers in higher education and men teach female classes through a one-way video conferencing system.

This section seeks to place Saudi education in context through a summary of its history, and that of higher education. The account begins with an explanation of the school system on the Arabian Peninsula, and the manner by which it evolved from a mosque-centred basic education for boys to the government-provided education for all Saudi children from primary school to university. Higher education policy is described and the section concludes with an account of the challenges to educational reform that the government seeks to address through the use of ICT to supplement the curriculum.

2.2.1 Schools Development

Prior to 1932 and unification, the Arabian Peninsula supported only basic education due to ongoing conflict and a subsistence economy. Makkah and Medina to the west, and Al-Ahsa to the east were exceptions (Faraj, 2005). Earlier, Makkah and Medina were, and remain, advantaged both through the income from the *Hajj* and educational opportunities from the resident and visiting scholars who congregate in the mosques (Obeidi, 1995). Literacy was valued for reading the *Qur'an*, and trading.

There were three forms of education on the Peninsula before unification, *Qur'anic* and traditional learning taught by an *imam*, public schools delivered by the Turks through the Ottoman empire, and private schools organised by parents (Albalawi, 2007). Traditional learning was delivered at mosques, which are places for worship and also repositories of knowledge and literature (Al-Aqeel, 2005). The mosques of Makkah and Medina provided superior resources and study environments, and attracted the foremost scholars in the Arabic language and Islam. A public education system was introduced by the Turks first in Makkah in 1880, then in Medina as an extension of their school system, using the Turkish language and curricula (Abdulwasa, 2002). These schools delivered boys a primary education for three years, middle school for three years, and a final preparatory period of five years for those seeking further education. Private education teaching literacy and the *Qur'an* was funded and delivered by parents

(Al-Hugail, 1998). After the Kingdom was established, the various unconnected teaching systems became somewhat more organised, although there was little in the way of funding until the exploitation of the oil discoveries.

During the 1930s, formal Arabic-based primary schooling began with an extensive program to establish schools across the Kingdom. By 1954, when the Ministry of Education was established, the country had 323 schools. As noted, girls' schools met with strong resistance, as a secular education was denied to women until 1960 when the General Directorate for Girls was established (Metz, 1992). This resulted in greater numbers of male students than female in schools until the 1990s (Al Rawaf & Simmons, 1991; Metz, 1992). The Ministry of Education absorbed the General Directorate for Girls in 2003 to facilitate administration, although the Directorate remains a separate part of the Ministry (Ministry of Education, 2003).

The Ministry of Education is responsible for free general education in primary, intermediate, and secondary schools; free tertiary education is also available as the responsibility of the Ministry of Higher Education. The ministries also manage school buildings, equipment, and all curricula. The Saudi government devotes considerable resources to education, including higher education and represents more than 25 per cent of the Saudi annual national budget (Ministry of Higher Education, 2010a). Over the last decade, policy changes occurred with the objective to integrate ICT into education and enhance students' knowledge and creative skills (Al-Sulaimani, 2010; Oyaid, 2009).

2.2.2 Tertiary Development

Higher education in Saudi Arabia effectively commenced in 1949, when the College of Islamic Jurisprudence was established in Makkah. It was the first college in Saudi Arabia, and later became the University of Umm Al-Qura (Ministry of Higher Education, 2010b). Riyadh University, which is now King Saud University, is the oldest university in Saudi Arabia, established in 1957 with nine lecturers and 21 students (Alebaikan, 2010). There were few resources in the first decades, so that with insufficient lecturers and disinterest in the community, the development of higher education was slow. A few colleges or institutes were established to offer diplomas and bachelor degrees in specific subjects like Islamic studies, Arabic language, and

education. Students who wished to pursue professional qualifications were offered scholarships to study overseas in Egypt, Europe, or the United States of America.

In the early 1970s, a period of the rapid development, the government focused on higher education to provide qualified professionals for the country's socio-economic progress (Alebaikan, 2010). In 1975, the Ministry of Higher Education was established to take over from the Ministry of Education responsibility for universities and institutes of higher education. Amongst other things, the Ministry was charged with:

- establishing tertiary institutions and authorising their curricula to meet the country's needs
- providing policy and practices for tertiary institutions
- coordinating communications between tertiary institutions and the public sector to focus on the country's requirements. (Ministry of Higher Education, 2010b)

In the tertiary sector, the Ministry of Higher Education supervises all aspects of higher education learning administered by agencies such as the General Organisation of Technical Education and Vocational Training which undertakes sub-professional, skills, and trade training. All Saudi universities are fully funded by the government so there are no tuition fees; further, students at the higher education level receive a monthly remuneration ranging from SR 700 to SR 1000 (average $AU200). As the samples for this study are students and lecturers at the university level, the focus in the remainder of this chapter is therefore on higher education.

The Ministry of Higher Education (2010a) produces comparative statistics of the growth in the sector, showing that in 2009 there were 31 public and private universities, including eight for women, and 487 colleges, of which 40 were for women. There were 29,704 faculty members, 38 per cent of whom were women, and the number of students per instructor fell from 21 in 2000 to 19 in 2009. The following Table 2.2 shows comparative statistics for student numbers.

Table 2.2
Tertiary Student Growth, 2000-2009

Qualification	2000			2009			Growth Percentage	
	Males	Females	Total	Males	Females	Total	Males	Females
Diploma	19,783	18,469	38,252	26,173	23,494	49,667	32	27
Bachelor	143,925	180,498	324,423	214,303	387,062	601,365	49	214
Masters	979	637	1,616	2,849	1,811	4,660	291	284
PhD	49	129	178	498	249	747	1016	193

Source: Adapted from Ministry of Higher Education, 2010a, p. 13

The Table above shows growth of tertiary students, arguably determined by the numbers of colleges that were brought into the university system. This could also account for the doubling of numbers of female undergraduates over the nine years. However, Ministry policy must account for the tripling of graduate students undertaking their Master's degree and the remarkable rise in doctoral candidates. Higher education policy is the topic of the next section.

2.2.3 Higher Education Policy

Since 2005, the Ministry established only professional faculties to enable students to select work-ready qualifications, that is, health, engineering, ICT, and management (Ministry of Higher Education 2010a, 2010b). The majority of Saudi universities offer segregated undergraduate and postgraduate degrees for all Saudi students, whilst there are also gender-specific universities. King Fahd University and the Islamic University admit male students only, while Princess Noura bint Abdulrahman University only admits females.

The Ministry of Higher Education has a five-year development plan, with objectives consistent with the country's national plan, and policies directed at addressing foreseen issues in pursuing those objectives. Besides developing higher education, the Ministry aims to enhance quality and performance of its institutions. A review of its last two plans, 7th (2000/2004) and 8th (2005/2009), shows a shift in objectives from establishing sufficient resources in the 7th to meet demand, to quality and performance of those resources in the 8th. Abalhassan (2007) asserted that the

Ministry of Higher Education became more interested in using instructional technologies such as blended learning to improve quality in the sector. The Ministry's 8th plan provided a diversity of higher education programs with a greater use of ICT as innovative learning, and also courses that allocated ICT qualifications. ICT was expected to provide more educational opportunities through e-learning and distance learning programs to make higher education more accessible to a greater number of citizens. King Saud University, King Fahd University, Islamic University, and King Abdulaziz University established deanships of e-learning, and are national leaders in online learning. As an entirely online curriculum was deemed to be not acceptable, online learning supplemented traditional instruction. In keeping with the innovation policy, the 9th plan (2010-2014) emphasises research and development, establishing future universities and colleges, assessment and performance standards for faculty and students, and upgrading community colleges. The plan promotes greater communication and sharing among the universities, and supports the establishment of quality private universities and colleges, in part to relieve the pressure on the free public system (Ministry of Higher Education, 2010b).

The Ministry introduced blended learning as its preferred approach in 2006 and established the National Centre for E-learning and Distance Learning:

> to allow creating unique educational environments, which contribute in building a wide range system to what is known as Blended Learning, to fulfil the needs of Higher education in the kingdom and spread the e-learning centres in the region. (National Centre for E-learning, 2010, p. 3)

The primary goals of the centre are to

- develop quality standards for e-learning and distance learning programs and educational digital materials
- assist to increase institutions' service capacity through electronic applications
- contribute to the information society through developing an e-learning and distance learning culture
- assist in evaluating of e-learning projects and programs
- support research and conferences in e-learning and distance learning.

The Centre produced several initiatives in fulfilment of its charter, including a learning management system, *Jusur*, to manage learning and teaching in Arabic; a digital repository, *Maknaz*, to store, manage, and share learning material between Saudi

universities; and the Digital Library (ZAD) which has 90,000 resources for science and humanities courses. Fourteen Saudi universities have to date introduced e-learning, using the Centre for technical and consultative support, faculty training and access to Jusur and Maknaz (National Centre for E-learning, 2010).

2.2.4 Challenges to Reform

There is a substantial body of research concerned with higher education as a means to promote socio-economic reform (Alkhazim, 2003; Albalawi, 2007, Aseeri & Broad, 2009). Nolan (2011) stated that higher education reform for Saudi Arabia with its religious, political, and regional stakeholders is perhaps the most difficult among the GCC countries "due to its accelerated pace of development, deep religious traditions, and the complex political dynamics of the Kingdom" (Nolan, 2011, abstract). There are practical considerations as well. Alshumaimri, Aldridge, and Audretsch (2010) considered the pace of ICT introduction, arguably led within the public sector by the universities, and find that the Kingdom's goal is to bypass the manufacturing stage of economic development for the innovation-based, or knowledge economy. Thus the structural framework of educational reform must address restrictions through traditionalism such as the gender issue; politics through the competing secular and religious interests; regional priorities such as the *Hajj* for Makkah; and produce innovative graduates who are trained in the professional disciplines. These are formidable challenges for the government of Saudi Arabia.

The aim of producing innovative graduates is to fill the country's future leadership roles, hence the need for innovation. Merely training or educating students in traditional or even current professional systems provides no career guarantee. Whilst skills are important, the government requires the underlying knowledge and ability to adapt to change from the graduates. It is a challenge for a conservative society experiencing rapid socio-economic change, that is, more graduates are needed in health and engineering, not the social sciences, Arabic, or religious studies (Alkhazim, 2003). Whilst the students prefer the artistic and social subjects, the Ministry of Higher Education is changing its curricula, and establishing professional faculties, to bring graduates more in line with the world of commerce and services where they might find employment. The Ministry could also consider professional development for its academics, who are arguably less engaged with ICT innovation than their students.

Current students are rapidly adopting all manner of ICT, from which they adopt a global perspective that their instructors may not share. It is a challenge for the Ministry to bring its 30,000 academic instructors to a standard of skills and knowledge to enable them to produce competent graduates (Onsman, 2010). A further issue is to retain academic staff. Iqbal, Kokash, and Al-Oun (2011) found that inadequate management practices, inappropriate recruitment, and lack of performance criteria impact on faculty intention to stay.

The geographical nature of the country is an issue. Saudi Arabia is a large country, with isolated communities, and few universities (Albalawi, 2007). In the last decade, although new universities were established in regional areas, they do not have the necessary resources and programs so that there is still a predilection of young people to move to the cities where the universities are better resourced.

The gender separation for the universities duplicates the issues of administration, resources, and costs. Saudi universities require separate venues and facilities for their female students. Obstacles to female students are not so much academic performance, as legal restrictions placed on travel and communications at university, and their choices for careers through restrictions on occupation and at the workplace. The gender segregation compounds the effects of insufficient resources in the Saudi higher education to fulfil student demands (Albalawi, 2007).

Whilst the structural issues of management ability, faculty standards, finance, and students' choice for their qualifications remain, the advent of blended learning programs in Saudi universities is expected to alleviate some resource restraints (Alaugab, 2007; Albalawi, 2007; Alebaikan & Troudi, 2010a). Blended learning can increase the capacity of universities, offer more programs with improved curricula resources, deliver courses to students no matter where they live, and provide female students with better channels for interaction and communication. Alebaikan and Troudi (2010b) asserted that segregation and female status in Saudi Arabia underpin women's acceptance of blended learning. The status of women in Saudi higher education was emphasised in this section to demonstrate the significance of this study, which assumes that the use of blended learning in the Saudi higher education can be beneficial especially for female students who have male instructors.

2.2.5 Summary

If not the first priority of the Saudi government, education policy is certainly a critical element in modernisation. Developed countries had stable education systems a century before the Saudi government assumed the resources in the mid-20th century to undertake its massive task, challenged further by a historically high birth rate which persisted into the last decade. As Ramady (2010) noted, the government's economic priorities changed over time to place education as a necessity to drive continued socio-economic reform, and this is illustrated by the change in emphasis from the provision of educational services in the Ministry of Higher Education's 7th plan to the standard of the qualifications in the 8th plan. These policies are confirmed in the 9th plan, using the increase in graduate study as part of the government's drive for professionalism and leadership for the country's future (Ministry of Higher Education, 2010b).

The recent introduction of blended learning is expected to overcome many of the operational issues. Whilst the priority is to reduce gender discrimination for students, the availability of online material, including video lectures from eminent scholars, greater communication and discussion threads, and an investigative mindset can reduce the impact of local restrictions a student may encounter. This can fulfil the government's policy to produce an innovative generation of leaders. The next section of this discussion takes one example of this, the subject of this study, Umm Al-Qura University.

2.3 Umm Al-Qura University

The previous sections discussed the Saudi higher education system, whereas this section provides information on the study context, Umm Al-Qura University (UQU), which is one of the Saudi universities undergoing change. Further, this university has characteristics that show the potential for blended learning approaches.

The university is one of the oldest Saudi Arabian universities, established in Makkah in 1949. As the seat of Islam, the holy city's mosque, Masjid Al-Haram, is the world's largest, and Umm Al-Qura University has an academic reputation in the fields of Islamic studies, Arabic languages, and education. The university commenced with two colleges focusing on Islamic studies and education. Upon the development of

higher education policies in 1981, the university introduced faculties of natural and social sciences.

Umm Al-Qura University now has 15 colleges and three institutes, offering undergraduate and postgraduate degrees in Islamic studies, education, Arabic language, social science, applied science, medicine, and engineering (Umm Al-Qura University, 2011). In 2009, the university supported qualifications in 26 disciplines, delivered by 2711 faculty members including 1625 males (60%) and 1086 females (40%) (Ministry of Higher Education, 2010a). The university' colleges are spread over thirteen campuses centred on the city of Makkah, with five of these solely for women students.

Besides its academic degrees, UQU is a national leader in research and has a large publication function, producing textbooks and educational materials for the country. The aim of the university is to assist the country's economic future through producing quality graduates (Umm Al-Qura University, 2011). In light of the National Development Plan and to meet the needs of employers, the university intends to increase the number of students in pure science studies at the expense of arts and humanities (Umm Al-Qura University, 2011).

There are several issues confronting the university's administration. There is a shortage of financial funds, infrastructure, and professional resources to meet its burgeoning needs. This shortage is exacerbated by a significant increase in student numbers, especially women. In 2006 there were 9,611 female students and this rose 25 per cent each year to reach 15,556 in 2009 (Ministry of Higher Education, 2010a). In 2009, nine per cent of all new students in Saudi higher education enrolled at UQU, which received the second largest number of enrolments; and over half of these were women. There were 61,309 students at UQU in 2009, 55 per cent female and 45 per cent male.

As UQU is located in the holy city of Makkah, the university is affected by the annual *Hajj*, the largest pilgrimage in the world, when some three million Muslims participate. The majority of pilgrims extend their stay in the city beyond the week-long *Hajj* and the three-day celebrations of *Eid Al-Adha* that follow (Hajj break). As a result, the City of Makkah with a population of some 1.5 million is inundated, with accommodation and transport at a premium. Despite access constraints, UQU must continue with its charter, provide quality academic services, and improve its

performance. This leads to a particular interest in ICT as a means of delivering content and maintaining communications, particularly during the *Hajj* season. Further, a policy objective is greater use of ICT by the university staff (Ministry of Higher Education, 2010b). UQU's Information Technology and Technical Support Centre has the responsibility for meeting the needs of the faculty and students, and maintaining ICT services throughout the university. The Centre designs and builds communication networks within the university, trains staff and students in the use of ICT, and administers all ICT applications (Umm Al-Qura University, 2008).

The Centre is proactive in its commitment to digitalising the university, providing desktop and laptop computers to all faculty and assists students with laptop access through a joint venture with a private computer company. The centre supervises over 68 computer laboratories throughout the university's campuses in Makkah. These laboratories have computers, printers, scanners, and high speed internet connections, and further laboratories are added as resources and priorities permit (Umm Al-Qura University, 2008). Recently, UQU focused on integrating technology, especially the internet, into the university's curricula, promoting the benefits of online activities to both faculty and students, and producing programs and short workshops for students and instructors to improve their technological skills. Whilst the majority of programs are basic introductory courses, these are extending into more advanced applications regarding websites and the range of educational software aimed at improved faculty-student communications. These programs are free and available to all university staff and students.

Whilst there is little doubt at the rate of introduction into the university of the online delivery of blended learning environments, the process is, however, spasmodic and unequal. Until 2009, UQU had no learning management system access such as Blackboard or WebCT. Colleges and faculty varied in their use of online learning, with higher adoption rates of online learning functions in science and business faculties than in the more traditional religious and social sciences. UQU supported such implementation, and gave faculty financial and technical assistance in placing their websites within the UQU's portal. In 2008, there were over 70 websites accessible through UQU's portal, whereas unknown numbers of websites may be elsewhere, as UQU supports faculty on other domains as well. However, the number of websites available on the university portal increased, possibly due to a higher profile than non-

university sites. In mid-2009, UQU contracted the Saudi National Centre for eLearning and Distance Education to provide technical and consultative support for online learning applications, including faculty training and access to their databases such as *Jusur* and *Maknaz.*

In summary, the university currently lacks infrastructure and professional resources to provide the quality education that the Ministry of Higher Education demands. This is exacerbated by significant increases in students, particularly women, who require separate and duplicate facilities, and who have restrained capacity to travel. In the *Hajj* season access is a particular issue for all students. In this instance ICT is an attractive option for student-instructor communication and course continuation, particularly as increased use of the media is an objective of the government. Technological barriers are being overcome; UQU is providing internet training and more complex applications for faculty and students. Underlying these barriers is the standard of ICT services in Saudi Arabia, and this factor is the subject of the following section.

2.4 ICT in Saudi Arabia

Saudi Arabia traditionally lacked communication services. With its scattered desert settlements, the physical environment in Saudi Arabia is not conducive to a decades-long installation of a land-line cabling system characteristic of the developed economies, although this is indeed occurring for its major cities. Until the widespread availability of internet wireless technologies in the early 2000s, the population was not widely cognisant of computerisation. This changed with the advent of computers into education and the government's objective of improving computer literacy, first among students and for commerce, then through society. This section describes the antecedents of ICT through the country.

Despite the challenges of a harsh environment of heat and humidity, telecommunications is a priority throughout Saudi Arabia. The Directorate of Posts, Telegraphs, and Telephones was established in 1926, before unification (Ministry of Communication and Information Technology, 2011). During the next forty years, the communications network was extended throughout the country. In 1995, mobile services came into operation, and were followed by the internet three years later. Due to

cultural and traditional values of Saudi society, the internet is censored throughout the country (Al-Tawil, 2001; Sait, Al-Tawil, Ali, & Khan, 2003). In 1998, the government-owned Saudi Telecom Company (STC) was made responsible for telecommunications services. This accelerated ICT demand and supply, not so much through landline services, which remain expensive and challenging, but through mobile services (Sait et al., 2003). Yet in 2007, according to a national demographic survey, 69 per cent of Saudi households had no access to internet services (Central Department of Statistics and Information, 2007).

Because of the significant global role of ICT, the Saudi government focused on technology over the last decade, establishing the Communications and Information Technology Commission to increase awareness in 2001 (Communications and Information Technology Commission, 2011). In 2007, as part of the government's long term economic development agenda, a National Communications and Information Technology Plan was established for the country's

> transformation into an information society and digital economy so as to increase productivity and provide communications and IT services for the sectors of the society in all parts of the country and build a solid information industry that becomes a major source of income. (Ministry of Economy and Planning 2010b; National Communications and IT Plan, 2007, p. 4)

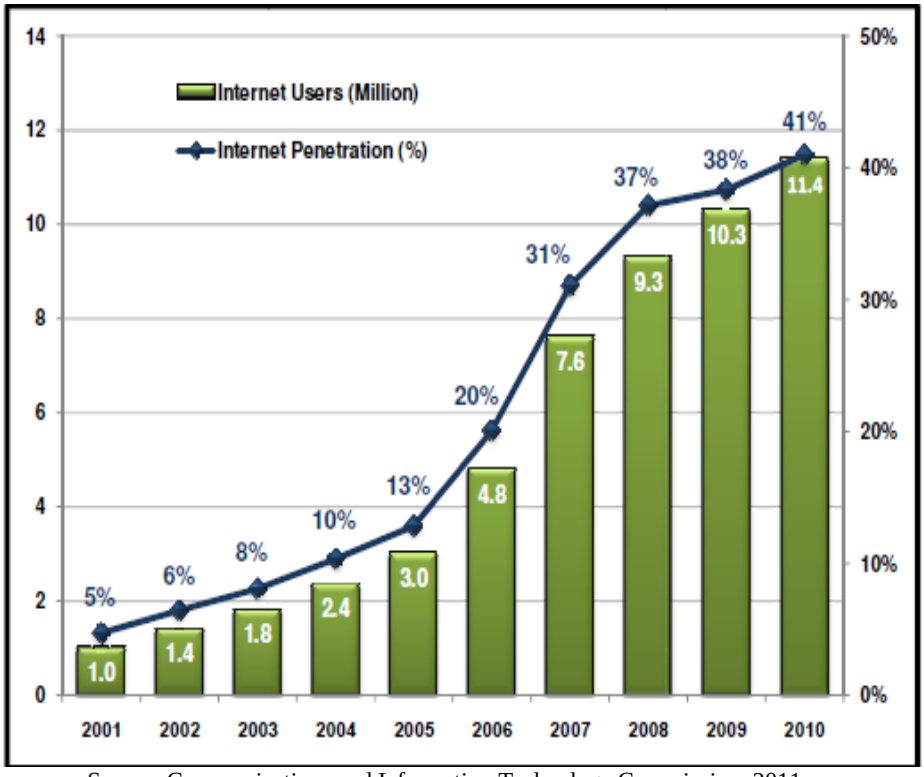
A five-year plan (2005/2010) established ambitious goals for the period:

- training over a million nationals and employees on the use of ICT
- increase the diffusion of PC and internet usage to one residence in 30
- introduce computer and internet courses at all educational levels
- increase the percentage of interactive electronic content to 30 per cent of educational curricula for intermediate and higher education levels (Ministry of Economy and Planning 2010b; National Communications and IT Plan, 2007, p. 5).

As a result, total spending on ICT reached 27 billion Saudi Riyal (SR) ($US7.2b.) in 2010, and it is expected to increased by 23 per cent in 2011 (Communications and Information Technology Commission, 2011). Further, Saudi Arabia is implementing e-government throughout the public sector to increase the efficiency of services, and the Commission, with the National Commercial Bank, is assisting one million families to buy a computer (Communications and Information

Technology Commission, 2011). In the education sector, ICT programs encompass curriculum, teaching, and learning at all educational levels (Oyaid, 2009).

There has been a dramatic growth in ICT applications. According to the Communications and Information Technology Commission (2011), the number of internet users grew from three million in 2005 to over 11 million by the end of 2010. The total number of mobile subscriptions reached 50 million for a 27 million population. Further, computer usage is increasing rapidly, with the Commission indicated that desktop computer penetration increased annually by up to 19 per cent. This is due to several factors, including the increased public awareness of ICT, competition in the telecommunications market, improved quality and prices, and the expanding coverage of the internet and mobile services across the country. The development of the internet user growth is shown at Figure 2.2.



Source: Communications and Information Technology Commission, 2011

Figure 2.2 *Internet User Growth in Saudi Arabia*

To summarise, the government invested considerable resources in ICT, its infrastructure, and dedicated resources to increase the computer literacy of the population. These resources were initially directed at education, and the introduction of basic educational aids rapidly extended into more complex forms of ICT usage, in the

case of this research, into blended online learning. This is explored further in the last section.

2.5 Internet in Saudi Higher Education

The internet is an integral part of national education systems, not least Saudi Arabia's. Whilst developed countries adopted the internet as an incremental part of computerisation, the Kingdom adopted internet services later. This, however, may offer advantages due to a higher level of security, and the range of applications now available. This section reviews relevant research on the internet and the adoption of ICT into the curricula that broadens the media at hand for learners.

As noted above, the internet has a short history in Saudi Arabia. It was not until 1998 that the internet became available for public and business use (Allehaibi, 2001). Nevertheless, despite a slow start, internet users and subscriber numbers increased significantly with Saudi Arabia among the fastest growing internet markets (Sait et al., 2003). In the education sector, the internet was adopted by all levels of schools and tertiary institutions as it became available, particularly universities. Thus there is an expectation that instructors will incorporate ICT functions in their curricula, and use its communications and interactive features to overcome restraints through resources, gender, and at times, physical access to the campus (Oyaid, 2009). In higher education, research indicates that adoption rates of the internet are increasing (Alshankity & Alshawi, 2008). Several studies revealed a positive attitude for students, faculty, and university administrations toward the use of internet-based education/online learning in Saudi Arabia (Abanmie, 2002; Al-Arfaj, 2001; Albalawi, 2007; Alferaihi, 2003; Al-Ghonaim, 2005; Alharbi, 2002; Almogbel, 2002; Asiri, 2009). However, e-learning or blended learning programs are not universally adopted in Saudi universities.

Shortly after the introduction of the internet, Al-Arfaj (2001) explored students' perceptions toward its use at King Faisal University, an early adopter. Al-Arfaj found that with little experience of the internet's advantages, students were positive in their attitudes to the medium. Respondents reported that the major advantage of online learning was the vast amount of information which was continually updated and easy to access. They found advantage in its convenience and flexibility, however, at that time computers were costly and dialup internet connections slow. In addition, the results

revealed that there was a statistically significant gender difference in favour of women in the students' perceptions. Al-Fulih (2002) conducted a similar study investigating faculty members' perceptions from three Saudi Arabian universities, King Saud, King Faisal, and King Fahad. The faculty responses differed markedly to the students. Whilst less than half the faculty used the internet, the majority were affected by availability, lacked computer experience, and thus held a negative attitude towards the internet. Faculty attitudes regarding the internet continue to interest researchers, given the requirement to use online learning resources, and that students more readily adopted online media. Al-Wehaibi, Al-Wabil, Alshawi, and Alshankity (2008) identified factors of connectivity, intellectual property issues, and loss of privacy as common concerns of the faculty regarding their use of the internet. Alebaikan and Troudi (2010a) concur, stating that there is a traditional university culture that resists change. However, Alshankity and Alshawi (2008) found no difference in gender in internet use by faculty members.

2.5.1 Web-Based Instruction

With the widening of Saudi's internet services, online learning or web-based instruction became practical. Moreover, an increased demand for higher education and a considerable shortage of female faculty led the Ministry of Higher Education to exploring online learning approaches (Al-Khalifa, 2010). Research is therefore concentrated on online learning in higher education, with its increasing demand (Section 2.2.2). In this regard, Al-Ghonaim (2005) probed the attitudes of instructors and administrators regarding online instruction at the Buraidah College of Technology, which is available only to male students. Al-Ghonaim asserted that instructors and administrators were positive in their views on online instruction with flexibility and reduced class assignments noted as advantages, however, issues remained regarding resources, training, and technical support.

At the university level, Al Saif (2005) studied the views of male and female faculty members of web-based instruction at Qassim University. The participants were positive about the medium, citing satisfaction, flexibility, an effective solution toward increased enrolment, and scheduling benefits. Again, issues they reported included the lack of policy direction, and insufficient support and training. In accordance with Alshankity and Alshawi (2008), Al Saif (2005) found no significant relationship

between the adoption of web-based instruction and faculty gender. In a similar study, Albalawi (2007) carried out research at three Saudi universities, King Abdul Aziz in Jeddah, King Saud in Riyadh, and King Fahad in Dhahran. Over 500 faculty members of both genders participated in this study on web-based instruction. They were also positive, with the view that online courses are the future of higher education. Affirmative factors in this research were enhancing pedagogy, motivating students, and facilitating communication between faculty and students, especially with the gender issue. Negative factors were, again, little policy direction and the faculty's lack of experience in producing curricula using the online environment. The author noted that faculty members were not involved in the development of online curricula: "faculty members of Saudi universities are willing to be involved in creation of the WBI (web-based instruction) and should be provided with the opportunities to create exciting learning environments for their students" (Albalawi, 2007, p. 92).

In a wider study, Alnujaidi (2008) investigated web-based instruction involving male and female faculty with various graduate degrees in 20 Saudi universities. This study supported earlier research where faculty were not aggressive in implementing online instruction. Internet users held bachelor and master's degrees, however, again there was no significant difference for gender. Alnujaidi advocated for more awareness programs for faculty and training in curriculum-based activities to promote positive attitudes to using the internet. Alaugab (2007) sought the views of 300 Saudi female students and faculty toward online learning in higher education. This study clarified a number of matters important to policy makers relating to women's attitudes to the internet and online learning in particular:

- female students and faculty in Saudi Arabia had positive attitudes toward online learning
- female students had significantly better attitudes toward online instruction than faculty
- both students and faculty reported advantages as flexibility of learning, accessibility and improvement of communications between students and faculty
- students who had access to a home computer and internet were more willing to take courses online
- students with fluency in English were more willing to participate in an online course

- experience with Microsoft Office applications, imaging devices, and discussion forums significantly influence students' attitudes towards online learning.

In relation to the barriers, interestingly, students and faculty in this study reported poor English fluency as the highest barrier to online learning. This makes sense given the dominance of English on the web. Other negative factors were lack of internet access, resources and support that impede online learning at the universities.

As ICT opens opportunities throughout the Kingdom, and with the impetus towards change in the higher education sector, researchers are developing the literature in these fields. Of interest, the majority of these studies were undertaken by Saudi students who were studying overseas in developed countries such as the United States of America, Canada, United Kingdom, and Australia, and who may be impressed by the greater use of technology in education. Of note, the studies were usually directed at certain regions or certain populations. Nevertheless, the results are mixed. The difference may be age related so that younger people, men or women, are more open to change than the faculty, who by definition are older. Moreover, the studies discussed in this section examined the use of the internet, online learning or web-based instruction as supplementary to traditional face-to-face courses. The next section considers a mixed-use method for imparting knowledge, blended learning.

2.5.2 Blended Learning in Saudi Higher Education

There is a trend emerging in the Kingdom's universities towards blended learning approaches (Almegran, 2008; Alebaikan & Troudi, 2010a). Almegran (2008), director of the National Centre for E-learning and Distance Learning, reported that the Ministry of Higher Education is encouraging Saudi universities to reduce students and faculty class attendance hours by blending online and traditional learning in Saudi universities. Almegran believes that students need not attend every session, as they can access the full lecture online and contact faculty as mentors. Blended learning approaches are being taken up globally, as they provide efficient solutions to challenges that universities encounter (Graham, 2006). It is therefore expected that Saudi universities will adopt this curriculum delivery method, especially as full online distance learning is not available within the Kingdom. While the lack of online learning ability in Saudi universities is the major factor, research findings are also not encouraging. Studies of fully online instructional delivery methods alone show that they

do not provide students with an adequate learning experience; that social contact is required to ensure focus and course engagement (Holley & Oliver, 2010; Macdonald, 2006; Singh, 2003).

As blended learning is an emerging trend in higher education in Saudi Arabia, research is needed to identify challenges and strengths of such implementation. Recent studies examine practices of blended learning in Saudi universities: Yushau (2006) on the adoption of mathematics, Al-Jarf (2005) on English language, and more general studies by researchers (Almegran, Al-Yafei, & Ahmad, 2007; Asiri, 2009; Alebaikan & Troudi, 2010a, b). In a review of extant studies examining online learning in Saudi higher education, Alebaikan and Troudi (2010a) pointed to three challenges for blended learning. The first is the traditional university culture where students are used to didactic lecture-based learning, and students in blended courses require a high level of discipline and responsiveness. The second challenge is identifying the optimum design of blended approaches, as blended learning involves a variety of delivery media and technology (Picciano, 2009). Finding the optimum design becomes an issue, especially when faculty lack knowledge in integrating online components effectively into the curriculum. The third challenge is the time issue. Faculty and students alike believe that online tasks and activities require more time and effort to complete (Vaughan, 2007). They complain about time management issues with a blended learning curriculum, where online instructions and activities are supplementary to face-to-face learning in lectures, workshops and seminars.

Asiri (2009) examined the views of male undergraduates at King Khalid University regarding the online component of a program-level blended learning environment. Students in this study were enrolled in face-to-face first-degree programs, and accessed Arabic language courses online. Participants had a positive attitude toward the online learning, as this medium provides greater flexibility and an attractive learning experience. They also noted improved outcomes, and the quality and attractiveness of content. Students with experience using computers preferred the online component than those who lacked computer skills.

Recently, Alebaikan (2010) probed the perceptions of female undergraduate students and lecturers at King Saud University regarding the future of blended learning. In this study, students attended a course-level blended learning environment, in which students attended one week of attendance lectures followed by two weeks of online

lectures. This study concluded that blended learning approaches have the potential to provide successful learning experience in Saudi Arabia. According to Alebaikan the majority of lecturers and students revealed positive attitudes towards the blended learning environment "the characteristics and structure of this new learning environment are compatible with the uniqueness of the Saudi culture, especially in issues related to women's education" (p. 259). The blended approach provides more flexibility for women to continue their university education while maintaining the values of Saudi culture. Nevertheless, the study exposed the lack of experience of faculty for preparing online curricula, that is, inadequate blended pedagogy was a significant barrier for blended learning.

2.5.3 Summary

The Saudi government is committed to improving the public perception of ICT, and in increasing public acceptance of technology to assist the country's response to globalisation. Recent advances in technological equipment, including iPods and iPads, smart phones, and global positioning devices are proving popular with youth. This is reinforced in the literature, where Al-Arfaj (2001) earlier found university student interest in ICT in the curricula, confirmed recently by Asiri (2009) and Alebaikan (2010). Saudi students and faculty have positive attitudes to using the internet in education; identifying flexibility, accessibility, and efficient communication as key attributes. Overall, instructors are willing to incorporate ICT functions in their curricula (Alshankity & Alshawi, 2008; Oyaid, 2009). However, internet-based learning is not universally adopted in Saudi universities, partly due to instructors' issues regarding connectivity, intellectual property rights, and loss of privacy after hours (Al-Wehaibi et al., 2008). Alebaikan and Troudi (2010a) point also to a high level of discipline and responsiveness necessary for students experiencing a blended approach to their courses, whilst lecturers have the additional challenge of selecting an optimal course design for a blended approach. Both faculty and students refer to time constraints in an already full schedule. Whilst these matters create barriers, further advances in ICT and internet capability may serve to reduce their impact.

2.6 Chapter Summary

The Kingdom of Saudi Arabia was formed 80 years ago by Abdulaziz Al-Saud uniting the greater part of the Arabian Peninsula. The exploitation of oil reserves after World War 2 gave rise to nation building, including the nascent education system. Due to religious and traditional constraints, boys were the first to be provided with basic education and this developed over the last decades of the 20th century as girls were provided with a basic education, then rapid population growth proved a barrier in the placement of resources (Albalawi, 2007). Further, fluctuating oil prices in the 1970s and 1980s interfered with the five-year socio-economic plans established in the 1970s and thus the financial resources for the development of education, which were, and remain free of charge to citizens of the Kingdom (Wynbrandt, 2010).

There was another issue as well. The establishment in the 1980s of tertiary education based on performance, that is, secondary school results, produced graduates destined for the public service to provide administrators for health, education, planning and housing (Alebaikan, 2010). There was little need for the professions, as contractors were hired for new projects and they supplied offshore labour and management. Universities were tasked with resolving this dilemma (Abdulwasa, 2002). To meet this policy change, universities changed from the traditional concept of learning to professional institutions tasked with the transfer of professional knowledge and skills to graduates to facilitate their success in the job market. Traditional teaching methods based on rote learning were abolished in favour of performance goals that reflected global pedagogical practices (Al-Aqeel, 2005).

With 30 per cent of the population under the age of 15 years, and an average age of 25 years, Saudi graduates have lacked the experience and skills necessary to strongly compete in the private sector (World Factbook, 2011b). University numbers increased three-fold in just five years, and all new faculties are professional, health, engineering, ICT, and management (Ministry of Higher Education, 2010a). Further, ICT emerged as the means by which this massive expansion in education may be accomplished.

Technology was another challenge for the government. Providing ICT services through cable to the universities was not accomplished until well into this century. The internet which appeared at the end of the last century was slow, unreliable and thus unsatisfactory. With restricted access, the faculty had little experience in the World Wide Web, and its notoriety as an undisciplined and untrustworthy source of information was regarded with deep scepticism by strata of rule-bound lecturers (Al-

Fulih, 2002). However, over the last decade, the government devoted considerable resources into extending and strengthening the reach of ICT, so that each faculty member has desktop and laptop computers, and the internet is no longer available only in the university's computer laboratories. In 2006 the Ministry of Higher Education established the National Centre for E-learning and Distance Learning, and this was supported by the National Communications and Information Technology Plan to bring a long-term perspective to ICT.

This is the background for blended learning for Umm Al-Qura University in the holy city of Makkah. The government demands graduates capable of entering the private sector and establishing their careers, and tasks the Ministry of Higher Education with developing professional curricula and the means of knowledge delivery to accomplish this task. Faculty members who may have struggled with Microsoft Office applications a few years ago now find themselves crafting online discussions for undergraduates, and setting online tasks and projects (Alebaikan & Troudi, 2010a). Women faculty show no preference to online learning in comparison with their male counterparts, however, all agree that the severe gender differences in the country are overcome with this form of communication. For UQU, the three challenges are those posited by Alebaikan and Troudi (2010a), that students in blended courses require a high level of discipline and responsiveness; that faculty must identify the optimum design in a blended approach; and that there is a time issue in skills acquisition, planning, and execution of blended learning.

This chapter has presented the environment of the study's research questions, and shows the antecedents and status of pedagogy and ICT in the Kingdom. The next chapter broadens this investigative research by reviewing the literature on these matters.

Chapter 3 Literature Review

Faculty members of Umm Al-Qura University in Makkah, Saudi Arabia are encouraged to develop blended learning environments for their courses. This study considers the various approaches by the instructors in setting up online information transfer and student communication websites on the university's website. These actions reflect the government's goals in achieving computer literacy for its citizens to meet the challenges of globalisation.

To inform the study on the range of these matters, this review comprises four aspects. The first concerns pedagogy and themes of current curricula research, learning in higher education, the focus on guidance rather than lecturing, and the increased role of communications and interactions between the student and instructor, and the class collective. This literature review then considers the characteristics of learning experiences at higher education, as a prerequisite to developing a blended learning environment. The second part presents a discussion regarding ICT as a catalyst for socio-economic development, and therefore its importance in both knowledge and skills acquisition for the individual. In particular, there is a focus on communication, and the development of interactivity between the course participants, that is, those aspects of the curriculum that contribute, or form input, to blended online learning. The third part relates the emergence of blended online learning, from an initial computer-based information service for the university administrators to the current manifestation of learning experiences using a range of technologies, programs, videos and interactive components. The benefits of blended learning applications to the university, the faculty and the students are explored, including addressing cultural gender restraints, typified by Saudi society. The fourth part discusses theoretical frameworks or models for ICT in education that may contribute insight into the efficacy of instructors' websites in UQU. It includes theory underpinning the acceptance of technology.

3.1 Higher Education

In the context of this study, the goal of higher education in Saudi Arabia is to impart knowledge and skills to an increasing proportion of the population for future professional, academic and social leadership for the country. This is a relatively new concept for the country, as there were few such institutions before 1980. This section reviews the literature on the evolution of pedagogical theories from the lecturer style to the development of a blended learning environment to place this study within the field of education and pedagogy. First, there is a brief discussion on the influential theorists of the 20th century who influenced learning practice, followed by factors impacting on students in higher education. This is followed by a discourse on the nature of educational policies and their practices.

3.1.1 Development of Learning Theories

This brief overview of learning theory is aimed at illustrating the pedagogical changes over the 20th century, substantially the transfer of focus from teacher to student working in a collaborative learning environment. An early advocate for the value of experiential learning, Kolb (1984) described the pedagogical change from cognitive theories of learning that focus on the 'acquisition, manipulation and recall of abstract symbols' (p. 20) and from behavioural theories that 'deny any role for . . . subjective experience in the learning process' (p. 20). The focus of this study is that an interactive learning environment may be supported through internet communication and information capabilities.

Probably the most famous exponent of learning theory was Jean Piaget, although his theory of cognitive development (Piaget & Cook, 1937/1954) remained under research scrutiny for some decades. Piaget's theory emphasised the role of individuals in developing their knowledge that is, acquiring knowledge, constructing concepts, and using knowledge in practice. For the purposes of this study, cognitive development underpins theories of learning and is a starting point for issues in the learning experience in higher education.

Of interest to this study's focus on access to information and transfer of knowledge is the individual's ability to develop highly differentiated mental structures. Inhelder and Piaget (1958) described the structural integration of concrete and formal

operations where the maturing individual develops insight. Although the number of intelligent acts that a learner performs depends on the amount of learning that occurs and the experiences confronted, it is the range of intelligent acts that forms a limited number of interdependent structures. These structures are identified, classified and integrated depending on the stage of development, so that at the higher education level at adulthood the identification and classification of these structures merge into a structured whole.

> During the formal stage, on the other hand, the adolescent comes to control formal logic. Rather than reasoning with directly given data alone, he begins to reason with propositions and with hypotheses. . . The *propositions* on which formal operations are performed refer to both variables hypothesised as causal, and to the effects they produce on the experimental situation . . . In other words, formal operations are ways of transforming propositions about reality so that the relevant variables can be isolated and relations about them deduced. (Inhelder & Piaget, 1958, pp. xvii, xviii)

As a supporter of this approach, Biggs (1987) described a theory of learning on the interaction between the person and the situation, the student's awareness of their own learning processes and their increasing ability to control them. In this model, the variables of personal factors, approaches and contextual learning, and the quality of outcomes elicit common approaches to learning tasks.

Constructivist learning, as epitomised by Savery and Duffy (1995), has three primary propositions, the first of which is that the process and content of learning cannot be separated, that understanding is a construct of the individual. However, cognition can be shared to a degree. The second premise is that the learner has a goal, a purpose, within a learning environment, so that both the purpose and environment influence understanding. Thirdly, the body of knowledge evolves through individual understanding and social influences that test that understanding. Collaborative groups are important for this purpose. Vygotsky (1978) saw learning as a social phenomenon, where social interaction underlies cognitive development. Vygotsky (1978) developed the *zone of proximal development,* which was defined as the difference between a student performing a task under guidance or support, and the ability to solve the problem independently. Vygotsky's contribution was learning defined as shared experiences in the socio-cultural context (Crawford, 1996), and thus is relevant to this study where students may interact online or in the lecture hall. Vygotsky's theory is that learning comes from the infant's communication of its needs to interact in the social

environment, and that the development of this ability leads to higher thinking skills. This was a factor in the change in pedagogy from the centrist view of the teacher as the source of information and 'knowledge' to the students constructing their own understanding. The role of a teacher in this learning environment is a facilitator in the construction of knowledge.

To add rigour to the learning process, Bandura's (1977) Social Learning Theory posited that learning takes place in a social environment, through observation and modelling, however, the theorist encompassed motivation, attention, and memory. Social learning theory uses continuous reciprocal interaction of the individual with behavioural, cognitive and environmental influences. These influences include attention, which determines the length of interest time; retention of the information and knowledge acquired; reproduction, and motivation, that is, practising the information or behaviour and the impetus to reproduce. Social learning theory encompasses attention, memory, and motivation and is aligned to Vygotsky's Social Development Theory.

At the end of the 20th century, Steffe and Gale (1995) reported the emerging paradigms as radical constructivism, social constructionism, social constructivism, information processing constructivism, cybernetic systems, and sociocultural approaches to mediated action. An underlying principle for these paradigms was in "viewing knowledge in a non dualistic manner so as to avoid the mind-body split of endogenic (mind centred) and exogenic (reality centred) knowledge" (p. xiii). Following Piaget and according to Glasersfeld (1995), the first paradigm, *radical constructivism*, places learning as an adaptation through experience of interpretations of reality, as the individual cannot perceive the real world. *Social constructionism* disregards the external world or an individual's mind in the learning process, finding that knowledge emanates from language, through the printed and spoken word, and depends upon social interchange. Meaning is achieved, according to Gergen (1994), through social interdependence.

Social constructivism, on the other hand, extends radical constructivism by learning through cultural processes and social interaction and differs from social learning theory by stressing interaction over observation (Duffy & Cunningham, 1996). Social constructivists emphasise knowledge acquisition as social and cultural processes, situations of collective actions of communities of practice and acculturation. Social constructivism evolved to encompass many aspects of the paradigm, one being

collaborative reasoning, an approach to discussion that requires critical thinking, free participation, and self-management.

Information processing constructivism also relates to this research. Iran-Nejad and Stewart (2011) explain that, in information processing theory, learning is the adoption of external knowledge, and understanding thus a continual processing and reorganisation of intuition. Thus, "the biofunctional process of understanding is the stable source and knowledge is the changing outcome of this process" (p. 1). From an educational perspective, the information processing constructivism approach means that the curriculum must focus on assisting students to develop knowledge through a process of integrating and reorganising information in the form of learner insights. This process is accelerated when it comes from the multiple sources offered through blended learning.

A cybernetics constructivism approach also follows radical constructivism, stating that action and cognition depend on each other, based on the concept of autopoiesis (self-formation). Foerster (1984) argued that the learning process is therefore internalised, continuously regenerated and realised as a network of relationships. The last of the paradigms, sociocultural approaches to mediated action, was introduced by Wertsch (1991) and seeks to combine Vygotsky's (1978) theory that social interaction underlies cognitive development with Bakhtin's (1981) notion of social dialogue. In this way, Wertsch sought to bring order to fragmented approaches that focus almost exclusively on the individual and failed to provide practical assistance to social institutions such as education (Sigel & Vandenberg, 1994).

To summarise, the paradigms of behaviourism, cognitive and constructivism, the construct approach of Vygotsky, Wertsch, and to some extent Bandura arguably underpin education theory that emerged across the world. The key aspect of the development of learning theories is that an effective learning environment must be interactive. This is especially true in higher education, where learners are more motivated to generate new ideas (Kuh, 2008). Of interest to this study, blended learning designs can be developed in a way that enhances interactions and communications between learners and instructors; as well, among learners themselves.

3.1.2 Characteristics of Higher Education

In study in the United States regarding how students learn, Coleman et al. (1966) identified the characteristics of learning, and these measures remain valid. The authors found there were physical elements to learning, such as the educational infrastructure, that is, the numbers of laboratories, libraries and textbooks; which today would be supported by information and communications technologies. Next are the standards and quality of the curricula which Coleman et al. nominated as academic, commercial or vocational; and the adequacy of admissions testing for courses and monitoring students' achievements. The researchers then described less physical characteristics of the learning process, including faculty qualifications, experience, remuneration, communication, and attitudes toward students. The student body was also examined, the students' socioeconomic backgrounds, educational level of their parents and the attitude of the student towards achievement in academic life and a future career. To measure the outcomes Coleman et al. tested for performance on standardised achievement tests. The value of the study for higher education was in the longer term, in identifying inputs and processes, rather than showing immediate results. This aspect is important to Saudi Arabia, as the purpose of education includes the necessity, according to the government, for the graduate to have the skills and knowledge to enter the workforce, and to continue the learning process whilst holding a job. However, it was established that underachievers are more affected by the quality of their educational experiences than are average or higher motivated students. Adding to this overview of the factors contributing to quality graduates from higher education, Kolb and Kolb (2005) discussed the value of experiential learning, recommending institutional measures such as longitudinal outcome assessment for the institution itself, and curricula, faculty, and student development programs that maintain quality consistency and relevance.

Motivation in students was raised by Astin (1999), who stated that student involvement was based on the "amount of physical and psychological energy that the student devotes to the academic experience" (p. 518). In this case, a highly involved student is one who expends considerable energy in studying, spending time on campus and actively participating in group activities, with frequent interaction with faculty members and other students. The underachiever and less successful students thus participate in these activities less than the average undergraduate (Tinto, 1975). Astin believed that higher education resources were maximised if student motivation and

engagement were given primacy over subject matter and technique; thus all university policies and practices, administrative as well as academic, should be evaluated on the basis of encouraging student involvement. Further, university faculty success in student engagement contributes to the higher education experience for undergraduates.

These views were also held by Choy (2002), who reported on longitudinal studies in the United States. Of interest to this study, the researcher agreed with Coleman et al. (1966) that the level of parents' education influences students' engagement in higher education, interestingly, with the exception of challenging mathematics courses. Choy (2002) also found that underachieving students initially applied for a course because their friends were seeking further education, and that they were likely to enrol again after some years. This is useful evidence for Saudi Arabia, inasmuch as tertiary students who do not complete their course may be interested in future on-line learning, or taking up a different discipline. Again considering the family circumstances, Bui (2002) investigated tertiary education pressures on first-generation students of ethnic minorities, particularly students whose parents had no higher education experience. Bui found that such students attend university to bring honour to their family and to gain status, and to help their family financially after gaining a degree, however, they felt less prepared for study and feared failure. Contributing to the importance of socio-economic status in the transition from school to university, Tieben and Wolbers (2010) found that students from lower socio-economic backgrounds do not capitalise on their secondary school attainments to the same extent as those from backgrounds of greater advantage. Again, these factors are relevant to Saudi Arabia, where tertiary education was rare a generation ago, and that qualifications are very much a factor in current society.

In a summation of the tertiary education methods, Kuh (2008) noted that the learning experience incorporating the initial ideas of motivation and student encouragement had resulted in the 'core' curriculum evolving into a range of modern forms. The writer mentions sets of courses common to a discipline, a number of successive courses, or participation in a learning community. The purpose of the learning community is to integrate learning experiences across courses and disciplines to focus students' attention on and to involve students in multi-discipline areas such as economic development or climate change. These are facilitated by linking courses where students gain sufficient knowledge on the factors (science, arts, and statistics) to

engage with the overall group. Writing courses introduce students to contribute at increasing levels of complex topics for different audiences so they can explain the salient features of the communication succinctly and accurately. In some cases, according to Kuh, this has led to learning communities undertaking tasks in parallel information literacy, quantitative reasoning, and ethical practices.

The earlier work by Coleman et al. (1966) sought certainty in performance levels through standardised tests and examinations on the premise that students across disciplines and institutions could be rated to assess the performance of the institution as well. Today, student evaluation has a wider base and there are a range of mechanisms to assess progress (Holden, Barker, Rosenberg, & Onghena, 2008; Hubball, & Burt, 2007; Sosnovsky, Brusilovsky, Lee, Zadorozhny, & Zhou, 2008).

Moving to the higher education experience in Saudi Arabia, Al-Harbi (2011) noted the challenge for the Kingdom in accessing sufficient professional and infrastructure resources to educate the increasing numbers of students approaching the age for higher education. E-learning was an option which could radically broaden the number of undergraduates by increasing their access to university resources through ICT. The findings of Al Harbi's study of the attitudes of Saudi university undergraduates toward online learning are that its use is influenced by computer and online access, students' online experience, and perceived behavioural control by instructors. The issues raised by Al-Harbi (2011) reflect those of Sun, Tsai, Finger, Chen, and Yeh (2008), who also questioned the efficacy of online learning. The researchers noted a global growth rate of 35.6 per cent for the e-learning market, however, there are factors affecting user satisfaction. The results of their study showed that "learner computer anxiety, instructor attitude toward e-Learning, e-Learning course flexibility, e-Learning course quality, perceived usefulness, perceived ease of use, and diversity in assessments are the critical factors affecting learners' perceived satisfaction" (Sun et al., 2008, p. 1183).

In summary, the characteristics of higher education that inform this research are those of researchers following Coleman et al. (1966), who identified and assessed the elements of higher education; and the work of Astin (1999) and Choy (2002) in describing factors that engage students with their studies and the effects of family background on students' higher education experience. The literature thus describes the characteristics of higher education over time and points toward future trends and the

challenges they represent. Over the decades, the learning acquisition methods and the nature of curricula have evolved. Kuh (2008) noted the dispersion of core elements of courses and the increasing 'generalisation' of the learning experience. Part of this evolution is the trend toward online learning so that more students can be accommodated with less physical resources. However, Sun et al. (2008) questioned the generic approach and found factors militating against user satisfaction.

3.2 Emerging ICT Usage

This section discusses the significant role of ICTs in society. It highlights the importance of understanding the history of using ICT in education, in order to reap the benefits in current and future use. The section reviews the application of ICT which can enhance the interactions and communications in blended learning environments, which is an important frame for this study.

The majority of countries have integrated ICT into their societies to some degree. In a national report, Warschauer and Liaw (2010) note that whilst technological competency is necessary for occupational success and social integration, ICT has not yet been fully accepted in education and research findings on the impact of technology in education are mixed. Nevertheless, the adoption of ICT throughout the world is accelerating. In relation to Saudi Arabia, the International Telecommunications Union (2011) reports that the growth of internet usage has surged from less than one per cent early in the decade to currently 38 per cent (Table 3.1).

Table 3.1
Internet Growth and Population Statistics

Year	Users	Population	Percentage
2000	200,000	21,624,422	0.9
2003	1,500,000	21,771,609	6.9
2005	2,540,000	23,595,634	10.8
2007	4,700,000	24,069,943	19.6
2009	7,761,800	28,686,633	27.1
2010	9,800,000	25,731,776	38.1

Source: International Telecommunications Union (2011)

Recent usage increases, according to Simsim (2011) are due to the increasing email access by Saudis, with youth attracted to mobile social contact and entertainment services. Infrastructure issues include the fact that the majority of fixed internet connections are digital subscriber line (DSL) over telephone copper wire; although Saudi Arabia has low fixed line penetration, at 16.22 lines per 100 inhabitants in 2009 against a world average of 17.1 (International Telecommunications Union, 2011). Earlier in the last decade, mobile telephone subscriptions were rising about 35 per cent annually, with 44.8 million subscriptions in 2009; that is, 174 subscriptions for every 100 inhabitants. This substantial increase was reflected in the statistics that there were no Saudi mobile broadband subscriptions in 2005, and over 30 million in 2009 (117 subscriptions per 100 people) (International Telecommunications Union, 2011). However, the Communications and Information Technology Commission (2010) reported differently, consumers were moving away from dial up connections, which accounted for 44 per cent of all internet users in 2007, and just four per cent in 2009. Broadband connections had increased from 50 per cent in 2007 to 96 per cent of internet users in 2009.

These statistical trends to mobile devices show a very different growth in ICT for Saudi Arabia than for other countries with a high income. The explosion of ICT devices also affects computer development patterns in the country. The Communications and Information Technology Commission (2010) reports that, although computer penetration was estimated at 53 per cent in 2009, 76 per cent of these users owned laptops and 66 per cent had desktops. Those who did not access the internet reported that competency, cost, and family pressures against the internet were factors. To a large extent, the Kingdom has bypassed the evolution of the desktop computer. Although there were cultural, security, and physical difficulties, computer models and programs arrive now in a developed form and thus the average Saudi arguably has a similar ICT issue to any other comparable world citizen.

In their global educational ICT report, Warschauer and Liaw (2010) point to the fact that a decade ago, everyone used slow internet connections, and very few people created web content.

> Today, the majority of computers sold are laptops, most of which access the Internet from always-on broadband wireless connections. Millions more locate online information through personal digital assistants or telephones. Tens of millions of people contribute to Web content through blogs, wikis, podcasts and

> other ‘Web 2.0’ technologies, and people and information connect through vast social network sites. (p. 1)

In this era of rapid development, employers seek ICT competency ‘the kinds of autonomy and creativity with technology that comes from extensive self-directed use’ (Warschauer & Liaw, 2010, p. 1). The emerging technologies that appear relevant to learning are multimodal learning and online publishing, discussed in turn.

3.2.1 Multimodal Learning

As the term suggests, multimodality involves combinations of face-to-face, spatial, linguistic, audio, and visual communications (Luke, 2003). In learning, and particularly higher education, multimodality takes on urgency due to the emergence of graduates into the workforce, and society’s perception that the graduates hold the most recent and relevant knowledge to improve the productivity of the firm. Bradmore (2007) found that, as well as their purpose of efficiently delivering knowledge into the community, university administrations face institutional challenge from globalisation, rapid changes in technology, and government insistence on increasing the quality and quantity of the graduates throughout the disciplines. Multimodality has a large role in this challenge, as by more efficient use of time and resources, learning can be distributed with greater effect to a greater number.

Whilst higher education, unlike schooling, has traditionally focused on the student pursuing learning with faculty support, that support is extended through assisting students to develop a critical approach to media content, and providing the tools for them to create material that is relevant to their culture and society. Warschauer and Liaw (2010) consider audio files, that is, podcasts, as useful for learning in given situations, such as travelling. Hegelheimer and O’Bryan (2009) reviewed podcasting in second-language education; finding podcast products that promote listening skills, prepare for listening tests, and provide grammar tips. In the wider higher educational context, podcasts are also useful for reviewing class discussions or lecture material. Students can also create podcasts, recording their impressions or styling script-based material with speech and music (Nyre, 2008). Further, audio files allow the cross-casting of material, where students in different classes, disciplines, or countries can communicate. Japson (2005) found that audio-based communication has advantages, with users tending to spend more time ensuring accuracy in communication.

In a report for the Organisation for Economic Cooperation and Development (OECD), Vickery and Wunsch-Vincent (2007) present the internet as the vehicle for providing user-created content through devices such as digital cameras, and software such as video-editing tools. Warschauer and Liaw (2010) note that students can create videos and internet-based material that depict course-based material or issues important to culture and society. Eshet-Alkalai (2004) expands on the skills beyond primary abilities to include the operation of digital devices or software competencies, noting that 'digital literacy' requires 'complex cognitive, motor, sociological, and emotional skills, which users need in order to function effectively in digital environments' (p. 93). The skills required include interpreting existing material to produce new content, constructing knowledge from a complex interface or portal, evaluating material and understanding the protocols of the internet. The researcher posits that digital literacy comprises the ability to reproduce material, connectivity, information generation, and socio-emotional literacy.

3.2.2 Online Publishing

The knowledge economy has delineated the labour market into those who are good communicators, and those who find difficulty in acquiring the new skills of human capital (Marrano, Haskel, & Wallis, 2009). Warschauer and Liaw (2010) report that in the United States, a large number of jobs depend on employees' writing skills, and thus good communications skills are necessary for graduates for resumes and job applications, life skills, and social relationships. Collaborative writing techniques assist in skills development, and emerging platforms for these skills include blogs, wikis and other online spaces such as chat rooms.

A blog, from the term web-log, is an online diary posted in reverse chronological order (Thevenot, 2007). Initially, web pages were used in regular communications, however, software that became available in 1999 opened the internet to all who could access it. Blog software accommodates images, text, audio, and links throughout the internet, inviting communications through others' comments. The *blogosphere* comprises personal journals such as Facebook, documenting thoughts, feelings, and day-to-day experiences; informational blogs regarding events in business or society, and politically inspired sites used to promote a view or position. Herring, Scheidt, Bonus, and Wright (2005) explain that blog structures can be simple single-

author sites infrequently updated, to commercial sites such as those news corporations employ. Educators exploit blogs to promote critical literacy and academic writing, creating class blogs for students to read, respond, and incorporate into their learning.

Similarly, wikis are websites that invite contributions, notably, Wikipedia. It is written collaboratively, with over three million articles and 23.8 million pages in total, with 78 million visitors each month. It is a contentious base for academic research and this is acknowledged on the site, where 'the ideal Wikipedia article is well-written, balanced, neutral, and encyclopaedic, containing comprehensive, notable, verifiable knowledge' (Wikipedia, n.d.). Other open source sites include Google docs (http://docs.google.com) useful for educational presentation sites, Moodle (http://moodle.org) modules for discussion forums, real-time chats, quizzes, and other features found in such commercial counterparts as Blackboard (Warschauer & Liaw, 2010).

Social network sites such as Facebook allow users to create digital identities, list other friends, and communicate with them and others within a bounded system (Ellison, Steinfield, & Lampe, 2007). From its beginnings as a communications platform, social networking evolved into a complex system that serves business and professional networks (Ellison et al., 2007). Papacharissi (2009) analysed three social network sites, the open-to-all Facebook, LinkedIn and a members-only site, ASmallWorld. The premise of the study was to seek types of interaction, and the author found themes showing exhibition of a private/public balance, self-presentation in spaces to a few or anyone; cultivation of taste as socio-cultural identification; and the formation of tight or loose social settings. Facebook showed a publicly open structure, wide behavioural norms and an abundance of tools that members use for contact. ASmallWorld and LinkedIn were more controlled, consistent with the taste ethos of each network. These aspects of social networking are useful antecedents for faculty or university-based networking.

3.2.3 Summary

Saudi Arabia's government is intent on developing the country's 'knowledge economy' based on Arabic, English and technological literacy. Whilst the literature is dominated by past issues and challenges of ICT that education confronted, technological resources are developing that the country can exploit. There are decade-

long problems with fixed infrastructure, ICT capacity and user reticence due to a range of issues from traditionalism to technology changing too quickly for five-year economic plans to address. Over the last few years this has changed with the advent of wireless technologies, provision of infrastructure to the home and business, generally through the progress of urbanisation. Use of ICT has also evolved quickly, with internet applications supplanting the demand. Google Docs or Moodle require nothing more than access to the internet for instructors and students to set up a site for a temporary project. However, the literature on these resources is scarce, as they have not been accessed by higher education providers that prefer to control their own portal websites. These emerging technologies should consolidate in the future, and the next generation of students will be competent to exploit the advantages of ICT.

3.3 ICT in Education

In a recent report, the World Bank states that the majority of developing countries have large-scale implementation of ICT in education (World Bank, 2010). This reflects the experiences in most OECD countries 10 to 20 years ago and many emerging economies more recently. Governments organise their education sectors differently in their funding, implementation and management of these programs, which are typically expensive and complex. Despite the highly varied local contexts, the Bank states that central to successful implementation of ICT in education, governments should employ dedicated institution and organisation frameworks, which will then evolve over time (World Bank, 2010).

The use of information and communication technologies in education is a policy of UNESCO, as it assists education planning and management. ‘The need for wide-scale innovations has led UNESCO to focus principally on system-wide improvement and change’ (UNESCO, n.d.). UNESCO considers technological change and its effects on education, which, as the organisation describes, is also evolving from a didactic to a learning environment. This may be coincidental in its timing, but computerisation and later, the internet, are powerful tools whereby information and knowledge can be accessed by anyone using the internet, so that instructors and textbooks no longer control the flow of information.

3.3.1 ICT in Curricula and Delivery

In a report to a United States' Commission on Higher Education, Rockart and Scott Morton (1975) posed the initial ICT questions, which are how does the computer affect learning in higher education, and how should a faculty member select computer-based instruction for a particular course? These questions remain valid and still inform this study. The theorists predicted that hardware and software would merge and computers would become easier to use, and Katz (2002) affirmed that this had in fact happened.

The challenge for information-based institutions, according to Katz (2002), is to align institutional resources and behaviours to guide increasingly complex and consequential institutional decisions. For universities, this requires an alignment of stakeholders' aspirations within a climate of continual technological change. New technologies open new pathways, affecting the university's mission, information resources, and thus services. This encourages competition, within the university, within the sector and indeed, globally. In an environment of societal convergence and divergence, Cantor (2010) states that higher education has a special role, producing and stimulating innovation, and educating citizens. Cantor observes that the former role of a university as a standalone institution apart from worldly affairs is now invalid and to fulfil its mission, the institution and its members must now engage with society. When well-known faculty members anywhere in the world can hold live seminars or lectures across the globe, then students benefit and the university holds true to its mission of providing the best possible learning environment. There is no role for isolated universities, and ICT is the pathway to a holistic form of the body of knowledge.

How should a faculty member select computer-based instruction for a particular course (Rockart & Scott Morton, 1975)? This was still a vexed question 15 years later, when Keane, Norman, and Vickers (1991), as an example from many, found that in health sciences education, research methodology issues with computer-assisted instruction interfered with research results. They advocated for greater understanding of the computers' infrastructure and software capabilities, and attention to methodology, instructional environment and cost, a constant theme of the time. However, there was an improvement in researcher attitudes as computerisation was absorbed as both a tool and a methodology. In a large study of the role of computers in teaching radiology to

medical students, Maleck et al. (2001) divided students into four groups, two using computer-based cases with or without interactive elements; one using paper-based cases with interactive elements; and the fourth as a control group which did not use the cases. Maleck et al. findings asserted that computer-based teaching improves students' problem-solving ability. Later, Palocsay and Stevens (2008) investigated assignments through the internet for undergraduate business students, using internet tutoring programs that claim to analyse the skills level of a student and respond with appropriate, targeted teaching to improve learning efficiency. The programs ranged from artificial intelligence based tutoring to instructor-controlled objective testing, finding that the quality of the faculty member and the competency of the student were the main criteria. However, once these factors were taken out, the researchers did not find advantage to automated tutoring and in fact, identified limitations. In summary, the faculty member should investigate the standard of technology commonly available, the level of students' technological literacy, the learning objectives, the curriculum, and the programs and infrastructure available that meet those criteria.

Studies of the first generation of e-learning users, however, indicate that online instructional delivery methods alone do not provide students with an adequate learning experience, which requires social contact for course engagement (Holley & Oliver, 2010; Macdonald, 2006; Singh, 2003). Moreover, writers such as Singh (2003) argue that the majority of early e-learning systems appeared to mirror the traditional course, merely supplanting or duplicating lecture material and using mainly printed supplementary material on the internet. At that time, Nachmias and Segev (2003) explained that the use of online material to support the traditional curriculum delivery would enhance students' access to resources, student interactivity and course engagement; which in turn led to the emerge of blended learning concept.

With the introduction of mobile media, university students now have wide flexibility in receiving information about the curricula (Evans, 2008). Evans describes podcasting that is, downloading audio or video files for selection by students for news, content or revision. In a study on the use of this technology, respondents reported that they prefer receiving the learning material as a podcast, rather than attending lectures or reading books, thus podcasting appeared to have significant potential as an innovative learning tool. This is confirmed by Bolliger, Supanakorn, and Boggs (2010) who show that students are moderately motivated when using podcasts to deliver the curriculum.

However, whilst Kemp, Myers, Campbell, and Pratt (2010) found that students expect podcasting as part of the curriculum, those who attended lectures more often tended to listen to podcasts less, and the authors detected a negative trend between hours listening to podcasts and student results. Again, this view was supported by Walls et al. (2010), studying students' attitudes towards podcasting, finding that 'students may not be as ready or eager to use podcasting for repetitive or supplemental educational purposes as much as we think they are, but they could be persuaded' (p. 371).

In summarising the effects of podcasting, Heilesen (2010) reviewed the literature published 2004-2009 on experiences with podcasting in higher education. The author concludes that whilst podcasting is a flexible delivery system for institutions, that the claims for the delivery medium have not come to completion and mobile delivery of course material may not be worth the investment. Whilst there is a lack of longitudinal studies of the effects of mobile technology, the indications of the efficacy of podcasting remain weak. There is, however, a positive effect from podcasting on the academic environment, the opportunity to experiment in course delivery and students' preference for new technology.

In the Saudi Arabian context, the integration of ICT in education has a distinct advantage. Tubaishat, Bhatti, and El-Qawasmeh (2008) note that ICT delivery of the curricula in gender-separated environments improves students' confidence and technical skills, encourages communication and collaboration, and allows women to become more independent. Further, Saudi government policy has long supported ICT. Reporting to the United Nations Public Administration Network, Abanumy and Mayhew (2005) observed that the Saudi government's policy on ICT was incorporated in the National Information Technology Plan. The objectives were to reach global parity in ICT availability and computer literacy of the population to support the country's economy. A major expenditure item in its five year socio-economic plans, educational ICT was seen as a crucial step due to the youth profile of the country and the rise of the service sector, particularly in knowledge, for jobs. In this regard, there were directives for the ministries to agree on standards and guidelines for ICT infrastructure and develop a security function (Saudi Computer Society, 2004). According to the last Communications and Information Technology Commission's (2010) report, laptop penetration increased for colleges and universities from 50 per cent in 2007 to 79 per cent in 2009, although this level of increase did not occur at the school level. Internet

connections from 2007 to 2009 also improved, with 93 per cent of tertiary institutions now having broadband connection. Internet connection issues are being resolved, with 35 per cent satisfaction rate in 2007 and 64 per cent in 2009.

In 2007, the government reported to the United Nations (Saudi Government, 2007) that it was committed to the privatisation of the telecom sector together with structural changes and economic reforms. 'The Government is also continuing its policies to promote the development and use of information and communication technology (ICT) in transforming Saudi Arabia into an information and knowledge society' (Saudi Government, 2007, p. 1). The dimensions of ICT contemplated were 'e-government, e-commerce, Telecommuting, telemedicine, e-learning, and digital Arabic and Islamic content' (Saudi Government, 2007, p. 1). This entailed government policy, infrastructure and resources including legislation, a privatised ICT industry, research and international collaboration. Saudi Arabia encourages local companies to build the local ICT industry. Furthermore, Saudi Arabia intended to regulate e-transactions, payment online, to accelerate online business transactions and government services. The aim of the policy was that

> By the end of 2010, everyone in the Kingdom will be able to enjoy – from anywhere and at any time – world-class Government services offered in a seamless, user-friendly and secure way by utilizing a variety of electronic means. (Saudi Government, 2007, p. 2)

In 2010, the International Telecommunications Union (2010) reported that Saudi Arabia was a top achiever on its 2008 ICT Development Index, reflecting a substantial increase in telephony, internet bandwidth or household access to the internet, and ranked 51st (from 159 countries). However, computer literacy lagged at 68th, whilst mobile phone penetration was 22nd, well above world parity.

3.3.2 Summary

Information and communications technologies are the primary method of imparting news, content, entertainment, and is a substantial tool in human communications and interactions. Governments invest in education, and ICT is a substantial part of the educational system. As ICT is now ubiquitous, faculty members must determine their goals for student use of such media and the content. Blended learning has emerged as a promising design that makes it possible to benefit from the strengths of online applications and face-to-face lectures.

3.4 Blended Learning

This section reviews the literature on blended learning, the basis for this study. It highlights the diversity in conceptualising blended learning, as well as its designs. Further, the section discusses the main benefits and challenges in developing such design. The section commences with a selection of definitions for blended learning, the factors leading to adoption, strategies for blending ICT-based and university attendance in the curriculum, online interactions between the instructor and student, discussion forums and then considers the views of faculty members and students regarding the blended learning environments.

3.4.1 Definitions

As with the term e-learning, there are definitional issues with blended learning (Jones, 2006; Macdonald, 2006). In the literature, terms such as hybrid, blended, mixed mode, and flexible are used in combining different instructional methods in a course (Graham, 2006; Littlejohn & Pegler, 2007; Stacey & Gerbic, 2009; Swan, 2009; Vaughan, 2007). In the higher education context, the terms blended or hybrid are used by Graham (2006), Picciano and Dziuban (2007), and Garrison and Vaughan (2008). Snart (2010) considers that differences in terminology are evidence of innovation, and differentiates between hybrid learning where online communication may replace face-to-face meetings, and blended courses where delivery is generally in a physical location. However researchers comment on the lack of agreement in the applications of blended learning (Garrison & Kanuka, 2004; Stacey & Gerbic, 2009). Allan (2007) notes that there is a diversity of blended learning approaches which militates against an agreed definition. Stacey and Gerbic (2009, p. 2) state that ‘blended learning can be placed somewhere between fully online and fully face-to-face courses and one of the definitional issues is where this might be on such a continuum’.

There is a supportive relationship between the web-based instruction components and face-to-face instruction. Oliver (2005) and Macdonald (2006) agree that blended learning is a method by which technology and live instruction are utilised to deliver a course. Garrison and Vaughan (2008) assert that the basic principle of blended learning is the strength of communication and interaction. The integration of face-to-face and online learning experiences needs to be well designed with

understanding of both learning environments. If not a definition, Vaughan (2007) and Allen, Seaman and Garrett (2007) form parameters for blended learning by establishing conditions, with Vaughan (2007) arguing that there must be a reduction in face-to-face contact and Allen et al. (2007) opting for 30 to 70 per cent of the course content delivered online. Stacey and Gerbic (2009) and Garrison and Vaughan (2008) then debate the characteristics of course content. Graham (2006) observed that the literature provides the following definitional themes, a combination of delivery media, different learning methods, or a combination of face-to-face and online delivery. The author prefers the use of technology in the third theme, as it reflects the historical concept of blended learning. Graham (2006, p. 5) defined blended learning as 'the combination of instruction from two historically separate models of teaching and learning: traditional face-to-face learning systems and distributed learning systems'. However, definitions such as Graham's overlook the complexity of blended learning (Stacey & Gerbic, 2009). Hence, blended learning in the current study refers to the notion that students generally attend face-to-face classes, and have online access to the course content and activities through their instructors' individual websites that facilitate communication and interaction.

3.4.2 Adoption Influences

Blended learning, in which traditional and online instruction are combined is termed the 'second wave' of e-learning (Graham, 2006; Littlejohn & Pegler, 2007; Singh, 2003; Wu, Tennyson & Hsia, 2010). However, different theoretical and practical approaches to curriculum delivery are traditionally part of the learning experience. In universities and other higher education institutes, delivery methods of blended learning include lectures, seminars, groups, and case studies (Bonk & Graham, 2006; Stacey & Gerbic, 2009). Further, Dziuban, Hartman and Moskal (2004, p. 2) state that 'the blending of face-to-face instruction with various types of non-classroom technology-mediated delivery has been (practised) . . . for four decades'. The innovation of online learning environments to support the learning process has made a significant impact of the concept of blended learning (Graham, 2006; Jones, 2006).

With the introduction of the 'knowledge economy', increased demand has been placed on universities, as research institutions, to adopt and disseminate ICT based curricula. Further, it is the role of public universities to serve their societies and to

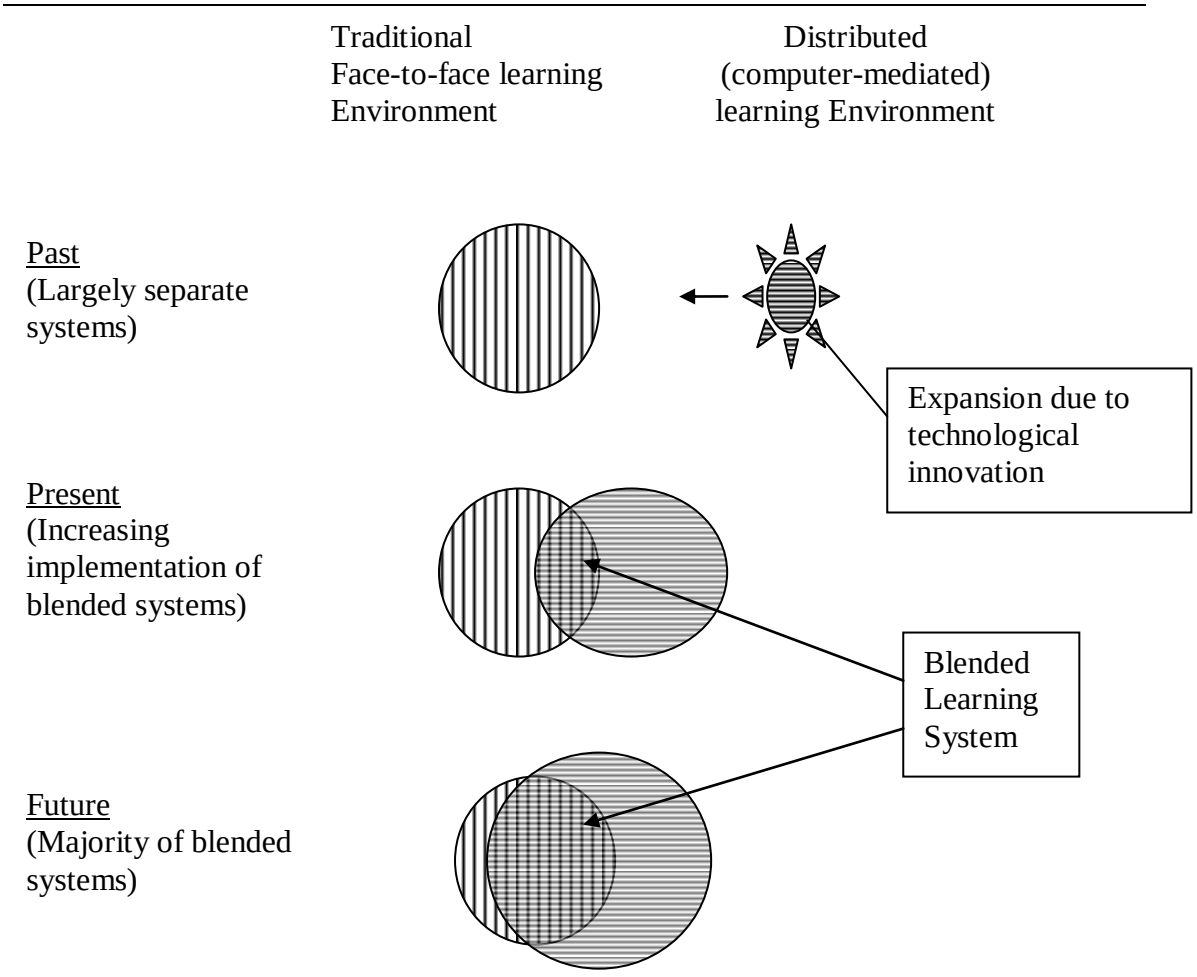
provide knowledgeable and skilled graduates whose education is sufficiently flexible to provide future leadership and a competitive response to globalisation. Governments are placing greater pressure on their education sectors to account for higher percentages of the population with tertiary qualifications (Bonk & Graham, 2006; Nachmias & Segev, 2003; Uğur, Akkoyunlu, & Kurbanoğlu, 2009). Higher education institutions therefore employ blended learning approaches to meet the new graduate goals, manage increased enrolments, better utilise physical and human resources (Snart, 2010). To these aspirations, Graham (2006) adds factors of improved pedagogy, increased access and flexibility, and increased cost-effectiveness. The efficacy of blended learning and its innovative activities has led early critics of e-learning to become supporters of blended approaches (Littlejohn & Pegler, 2007; Snart, 2010; Taradi, Taradi, Radić, & Pokrajac, 2005).

The combination of these forms of curriculum delivery, mixed with ICT, is now a widespread trend in higher education, and the technology component is expected to increase (Bonk, Kim, & Zeng, 2006; Garrison & Vaughan, 2008). Lin, H. (2008) argues that as there are both advantages and disadvantages in using distance learning, or sole online instruction, and the format of lecture theatre instruction, a convergence of media could maximise the advantages of both:

> blended instruction encourages asynchronous learning, which allows students more time on task, accommodates different learning styles and maintains quality faculty-student interaction. (Lin, H., 2008, p. 2)

Blended learning provides greater choice and effectiveness than other delivery methods (Garrison & Vaughan, 2008; Littlejohn & Pegler, 2007; Singh, 2003). Blended learning approaches can assist higher education decision makers to address issues related to curriculum delivery, student numbers and access, and academic program quality (Stacey & Gerbic, 2006; Picciano, 2009). Combining different approaches to curriculum delivery provides higher education students greater flexibility with their time, together with improved learning outcomes (Vaughan, 2007). Initially there are issues with taking greater responsibility for their learning, and time management, partly through gaining competency in the new technologies. Faculty find that blended courses increased student engagement in their learning, enhance teacher-student interaction and add flexibility in the curriculum through improvement opportunities. Faculty also find challenges in developing blended courses including a lack of time, support and

resources, and that they also have to gain competency in ICT applications (Vaughan, 2007). For the institution, blended learning is an opportunity to expand educational products and thus enhance its reputation, and ultimately it may reduce operating costs. The challenges for higher education management are in aligning blended learning with institutional goals, project and program costs, resistance to change and, lack of experience with collaboration and partnerships (Vaughan, 2007). Graham (2006) illustrates the development of blended learning in Figure 3.1.



Source: Graham, 2006, p. 6.

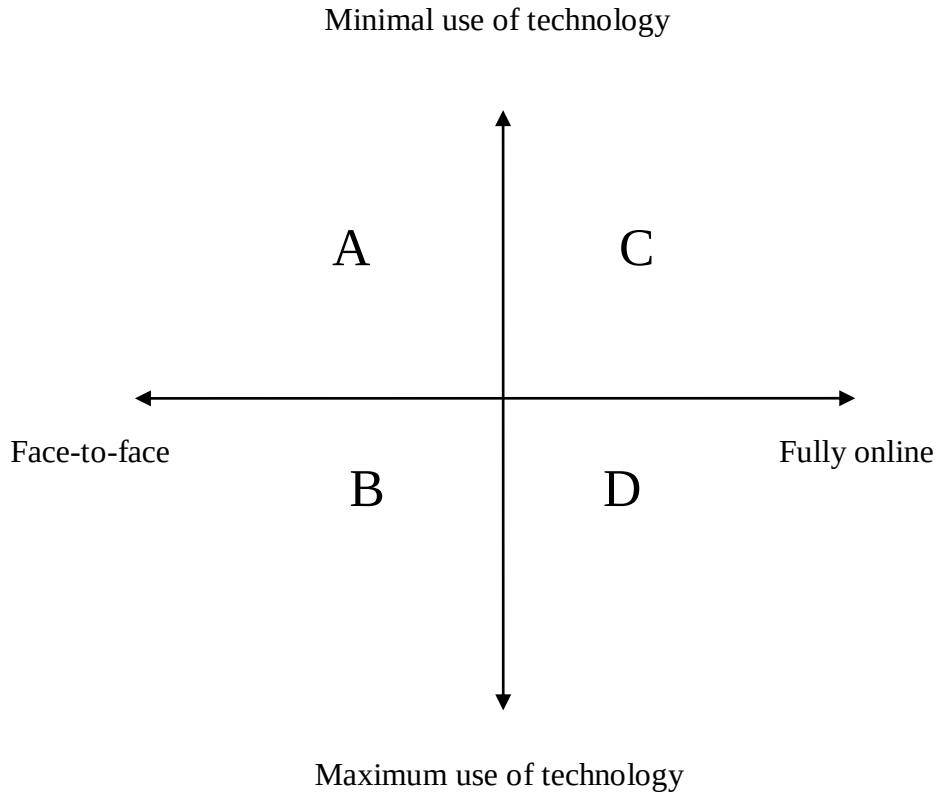
Figure 3.1 *Development of Blended Learning*

Figure 3.1 shows an increase of blended learning delivery due to expansion of distributed learning and wider use of ICT, and this transition to blended learning over the past few decades is supported by several studies, Garrison and Vaughan (2008), Graham (2006) and Lin, Q. (2008).

While the concept of blended learning may appear straightforward, Garrison and Vaughan (2008) argue 'the practical application is more complex' (p. 5). Garrison and Kanuka (2004) explain that whilst a simple form of blended learning lies in integrating online and face-to-face learning experiences, the complexity occurs with different learning designs. Taradi et al. (2005) state that, according to pedagogical principles, an effective blended course must be well-designed. Garrison and Vaughan (2008, p. 5) state that 'blended learning is a fundamental redesign that transforms the structure of, and approach to, teaching and learning'. This takes place in higher education as the emphasis is on undergraduates exploring learning options (Nunan et al., 2000; López-Pérez et al., 2011). The online component of blended learning, is an extremely resource-intensive process, requiring infrastructure, continual platform enhancements and updates, and monitoring to maintain capability; as well as the ensuring the users' ICT-based skills and access to fixed computers and mobile devices (Wu et al., 2010).

3.4.3 Blended Learning Strategies

A blended learning system, for the purposes of this study, is defined as the student's access to the physical and online presence of the lecturer or tutor that enhances their communications and interactions for the purpose of achieving graduation from a course (see Section 3.4.1). To place this in context, Picciano (2009) states that cultural and individual differences of learners faculty and course designers should use multiple blended approaches. A major benefit of multiple modalities is that they facilitate flexible learning whilst challenging students to widen their learning experiences. Critical to Picciano's (2009) model is that academic goals and objectives drive the course outcomes and thus the approaches and technologies used. The author defines the issues in blended learning as the nature of the course, ICT availability and usage by faculty and students, and the social environment of the higher education institution. These elements were depicted in a model as four groups, according to the extent of technology use and physical attendance by the students, see Figure 3.2.



Source: Adapted from Picciano (2009, p. 7)

Figure 3.2 *Blended Learning Approaches*

In Figure 3.2, the first group A comprises a teaching environment where students attend lectures and tutorials with minimal use of technology. In the second group, B, attendance is combined with varying degrees of technology. For group C, students meet online, however, the content tools are simple, such as electronic bulletin boards. In the fourth group D, students meet online with an advanced use of technology, such as interactive videoconferencing (Picciano, 2009).

Technology allows blending of different hardware and programs, with varying course delivery systems which can be accessed at will (Graham, 2006; Sharpe, Benfield, Roberts, & Francis, 2006; Allan, 2007). Allan (2007) shows that blended learning may incorporate time (synchronous or asynchronous access); place (campus, home, or other place); ICT applications (CD/DVD, internet, social networking); and pedagogy (student-centred, behaviourist, or constructivist). Further, blending may occur at an activity level, course level, program level, or institutional level (Graham, 2006).

There are wide variations in blended learning strategies, as the system can be used in both campus-based and distance courses (Stacey & Gerbic, 2009). Graham (2006) places blended learning systems in three categories, that is, enabling blends, enhancing blends, and transforming blends. In enabling blends, the purpose is to provide the same opportunity for both distance and campus-based students, generally to reduce the period required on campus for the students and to reduce the disadvantage for students who may travel long distances. In enhancing blends, the intention is to improve the pedagogy in either online or face-to-face learning environments. Graham (2006) observes that in campus-based universities, instructor websites are widely used in blended learning, where the online components enhance learning and the lecture theatre experience. In the third category, Graham (2006) describes transforming blends as making radical changes to the course delivery system. Concannon, Flynn, and Campbell (2005) note the rise of online media such as learning management systems that provide new frameworks for curriculum delivery. Learning by blending delivery systems can achieve different aims, according to Valiathan (2002), skill-driven learning, attitude-driven learning, and competency-driven learning. Valiathan's approach is suited to task-based work which in higher education, may refer to empirical parts of a course or qualification; certainly to certification. In the skill-driven model, Valiathan (2002) states that learning involves knowledge and skills that usually need regular feedback and support from an instructor or peer which can be provided by email or synchronous online features. The development of a new attitude or behaviour is facilitated by synchronous online meetings together with offline group projects. In the competency-driven model, learners need to observe and interact with experts as guides or mentors who continuously communicate with learners via email or discussion enhance learning.

In a similar approach, Allan (2007) has three models of blended learning, supplementary, transformative, and learner-led approaches. In the supplementary model, Allan asserts that educational resources and communication systems can be provided through a virtual learning environment to support the physical content of the course traditional person-to-person environment. In the transformative model, an existing course is radically modified to achieve the same or enriched outcomes using the most appropriate means for each module or dimension. Such redesign of courses could produce new curricula (Graham, 2006). Allan (2007) mentioned that in the third model,

the learner-led, a wide range of methods and ICT applications are used to engage students in learning. In higher education, the supplementary or enhancing approach of blend is widely used, where a physical presence is enhanced by online activities and resources, or the online component is enhanced by a physical presence (Allan, 2007; Graham, 2006; Littlejohn & Pegler, 2007). Moreover, when Macdonald (2006) investigated faculty practices in blended learning, the participants reported a variety of applications, email, digital lecture delivery, synchronous and asynchronous conferencing, online quizzes, PowerPoint slides, and digital whiteboard were the most popular. Tang and Byrne (2007, p. 259) assert that 'in blended courses, students and faculty, for example, use email, threaded discussion, online recitations and materials, and other course management tools along with traditional face-to-face activities . . . to deliver and acquire content'.

The design of a blended course depends on its goals and discipline. The blend could involve only one aspect or feature of online components (Chen & Looi, 2007). However, the integration of the online and face-to-face modes should support each other (Alebaikan & Troudi, 2010a, b). According to So and Brush (2008), the poor integration of learning components in blended courses may negatively affect the approach: 'blended formats do not necessarily provide students with more interactive and flexible learning experiences. More careful analyses of learners, contexts, and technologies are needed' (So & Brush, 2008, p. 322). As a new strategy in blended learning, Chen and Looi (2007) investigated the effectiveness of incorporating online discussion in both on campus face to face and off-campus settings. The findings were that online discussion can offer a wider spectrum of debate, increase participation, promote cognitive thinking skills, and enhance the students' engagement of learning. Again, the lack of proximity in physical interactions and finding sufficient time for online postings were major challenges in implementing this form of debate. Nevertheless, Graham (2006) and Garrison and Vaughan (2008) describe different examples of blended learning in higher education. The cases were global and the technology varied, however, the outcomes were invariably positive.

3.4.4 Online Interactions

By the turn of this century, Picciano (2002) estimated that the United States had two million post-secondary students undertaking courses entirely online. However, the

author noted concerns regarding interaction for students in their learning experiences. This leads to a definitional discussion on interactive learning, for which Moore (1989) proposed three different forms, student-content where the learner interacts with information, student-instructor where the learner interacts with the course leader, and student-student where learners interact. Curriculum design should therefore deliver content efficiently and effectively and the purpose of the learning environment is to engage the learner (Hillman, Willis, & Gunawardena, 1994; Moore & Kearsley, 1996). 'Interactions that promote and enable a strong sense of social presence help keep learners engaged and motivated' (Wagner, 2006, p. 9). As a social interaction, Pannitz (1996) stated that cooperative learning was usually content specific, defined by course guidelines and assisted by a leader so that group members can interact towards a specified goal. Collaborative learning is defined as consensus building between group members, sharing authority and accepting responsibility for the group task. In this situation, cooperative learning relates to someone leading the discussion or task. As the majority of online learning tends to be text-based, Graham, Allen and Ure (2005) explained that blended learning emerged to address the quality of interaction and instructor immediacy found in face-to-face attendance, which arguably enhances a collaborative learning environment.

Over the last decade, there has been considerable change regarding the infrastructure delivering online learning, mobile hardware and a proliferation of software that serves education. However, Donnelly (2010) surveyed academic staff interactions with students in a blended course, finding that the fundamental issues regarding benefits and issues of face-to-face and distance learning in the blended approach remain. These issues can be resolved by careful curriculum design and provision of an attractive learning environment to promote student engagement (Moore & Keasley, 1996). There are also increasing student numbers as governments seek a knowledge or learning society, and higher education institutions strive to provide quality courses in a competitive environment. Whilst there are infinite variables for interactivity in blended learning depending on its format, the study by So and Brush (2008) has a bearing on this UQU research, inasmuch as it relates to students' perceptions of elements of collaborative learning and social presence, and student satisfaction of a blended learning environment. The authors found that students who reported substantial collaborative learning were more satisfied with their distance

course; with course structure, emotional support, and the communication medium, as the major factors for satisfaction levels. Rice, Hiltz, and Spencer (2005) note that blended learning environments are more effective in bringing a range of media to learning, which can also be accessed in the classroom. Nevertheless, the authors state that it is 'the time and space flexibility of a supportive blended learning environment that can foster more in-depth independent learning . . . (and) asynchronous group communications may also include a larger diversity of viewpoints' (p. 215).

There is some evidence of interactivity emerging online as the internet matures. Yeh (2010) studied collaborative problem-based blended learning and found that online learning communities appeared in a staged process, acquaintance, socialisation, information consensus, and understanding and development. The researcher also found that factors influencing development of online interaction were, interestingly, perceived social homogeneity of the students; establishment of a discussion process which lead to cooperation in problem-solving; and the types of problems set. In a United Arab Emirates study, Shana (2009) also found that online discussion groups had a positive impact on the generation of knowledge; that students succeed with online interaction as they are more actively involved in the course by using a web-based discussion forum as a supplement to face-to-face instruction. However, in Saudi Arabia, Alebaikan and Troudi (2010b) raise issues for online discussion in blended learning as infrastructure, curriculum delivery, competency in the medium of online discussion, plagiarism, and demands on time.

In 1999, the Arab Open University was established in Kuwait to provide paper-based distance learning to assist rural communities in Arab countries (Ibrahim, Rwegasira, & Taher, 2007). Whilst a number of Arab universities offered distance learning, the authors noted that the curricula of these courses were not designed for distance learning, and that the part-time tutors from traditional universities were not trained in distance learning. Zhao (2003) indicates that distance education is considered inferior in quality to a qualification gained through physical attendance at classes, and that tutors would be reluctant to pursue professional training in that regard. And, this is especially true in the context of Saudi Arabia. Therefore, the Ministry of Higher Education recently introduced a directive that governs distance learning, thus imposing limitations on what can be implemented by the virtual university.

In summary, the importance of interaction in the learning process, whether actual or virtual, has a considerable body of evidence which dates at least from Moore (1989). This was emphasised by Frankola (2001), who found that students would withdraw from any course if they considered there was insufficient communication with the online instructor, who is considered the key to online learning. Whilst research findings were that the quality of instructors was the primary factor for students' retention or attrition decisions, this was based on the quality of the interaction, which 'was found to have an amazing effect on academic achievement especially in the context of distance learning' (Ibrahim et al., 2007, n. p.). In the case of Saudi Arabia, the slower pace of change in both pedagogy and ICT infrastructure has an effect on instructors' assumption of the challenges associated with blended learning; not least in the face of rapid changes in the ICT industry, such as mobile communications and devices associated with this.

3.4.5 Student Perspectives

Learners are considered the cornerstone of education and their satisfaction is a key element in developing the acceptance of a learning system (Irons, Keel, & Bielema, 2002). Research has found that a blended online learning environment influences students' satisfaction and engagement, and these are therefore indicators of student acceptance of blended learning (Garrison & Kanuka, 2004; Irons et al., 2002; Lin, Q., 2009; Rossett, Douglis, & Frazee, 2003; Taradi et al., 2005; Sharpe et al., 2006; Zhao & Yuan, 2010). López-Pérez et al. (2011) argue that as blended learning combines two different modes of learning, online and physical presence, there are significant advantages such as flexibility and cost-effectiveness. Vaughan (2007) asserts that students who had experience of blended courses were positive about their learning environment; and 80 per cent of student participants would recommend this type of delivery. The reason for their satisfaction was time flexibility provided by a blended format where learning could be paced as required. Lin, Q. (2008) concurs, stating that students prefer flexibility in course delivery; when on-campus lectures are combined with online instruction, learning is enhanced over the face-to-face delivery mode. López-Pérez et al. (2011) indicate that this is especially relevant where there are a large number of students enrolled in a course. Vaughan (2007) adds that students with other responsibilities such as work and family commitments prefer a flexible learning environment. The supportive relationship between the online and face-to-face delivery

models is an advantage of blended courses (Yuen, Deng, Fox, & Tavares, 2009). As noted, the majority of academics believe that the integration of online and face-to-face interactions is the most common aspect of blended learning approaches (Garrison & Vaughan, 2008).The integration of these two kinds of interactions introduces different forms of dialogue and new learning experiences (Littlejohn & Pegler, 2007). Taradi et al. (2005) assert that the motivation and enjoyment in virtual interactions were factors in student preferences for blended learning.

There is a debate on whether students' satisfaction is due to blended learning delivery formats or other factors. Coomey and Stephenson (2001) claim that a review of the literature does not reveal empirical evidence that students within blended format courses are more satisfied than students in entirely face-to-face or online courses. Coomey and Stephenson state that 'if interaction between students is not structured into the course, they will not do it' (p. 39), and that instructors must engender student interest to achieve online discussions. Further, the authors state that online learning formats should be challenging and provide clear feedback. Without monitoring and leadership by the instructor, students lose interest in pursuing online topics and activities. López-Pérez et al. (2011) concur, although research shows an increase in student satisfaction when blended learning is adopted, this satisfaction may be influenced by the faculty, the quality of educational activities, or the marks students achieved. Nevertheless, the authors state that student satisfaction may be considered a subjective determinant of the blended learning outcomes.

On the other hand, Zhao and Yuan (2010) assert that research consistently reveals high levels of student satisfaction for blended courses. Garrison and Kanuka (2004) found that student satisfaction of blended courses in which they achieve as well, or better, in their examination results than traditional course delivery, is evidence of the effectiveness and efficiency of this approach. Similarly, Yuen et al. (2009) assert that in comparison with sole face-to-face delivery mode, a blended learning environment provides a better learning experience for students, which leads to higher performance and satisfaction. Tang and Byrne (2007) also found that students in blended learning delivery mode have greater satisfaction than either solely online or face-to-face course delivery.

Student satisfaction in blended courses is influenced by factors such as flexibility, convenience, accessibility, and quality of interactions (Graham, 2006; Zhao

& Yuan, 2010). Taradi et al. (2005), for example, state that ‘students rated overall satisfaction with the hybrid course as better than with the traditional course . . . better results in terms of student performance and satisfaction achieved through virtual interaction are associated with greater motivation and enjoyment by students and tutors’ (p. 38). Factors that may influence student satisfaction of blended courses are modelled by Zhao and Yuan (2010) into four categories, student characteristics, faculty characteristics, course characteristics, and system features. Zhao and Yuan indicate that the student and faculty characteristics in blended learning are based on a positive attitude towards computers in education, and high computer competency. The immediacy of feedback and interaction quality are also essential requisites for faculty. Zhao and Yuan note that ease and relevance of use, flexible delivery and richness of content are important for student satisfaction. Swan (2009) believes that the enhancement of students’ engagement in learning is one of the advantages of blended courses, which led to the widespread adoption of the concept of blended learning in higher education.

A technological issue in blended learning is access and thus competency regarding the forms of technology used in course delivery. Online learning assumes that course participants have relatively similar access to the internet through computer and hand-held resources. However, student users may have limited access to the internet and limited competence in working online. Knight (2010) finds that students who had free access to online resources throughout their course performed better and had higher results than those who had intermittent or restricted access.

The literature shows that a major advantage of blended learning approaches is addressing travel distances (Garrison & Vaughan, 2008; Graham et al., 2005; Osguthorpe & Graham, 2003). Travel times to attend courses are an issue for students, particularly from remote locations, so that blended learning may reduce the need for physical presence on campus (Graham, 2006; Irons et al., 2002; Kali, Levin-Peled, & Dori, 2009; Matheos et al., 2005). Garrison and Vaughan (2008, p. 5) describe blended learning as ‘a restructuring of class contact hours with the goal to enhance engagement and to extend access to Internet-based opportunities’. Further, the use of technology, especially the internet, enhances access and learning opportunities for both distance and campus-based students (Graham et al., 2005; Turney, Robinson, Lee, & Soutar, 2009). In a blended learning environment, online curriculum and course information may be

accessed from various locations such as home, work, or campus (Taradi et al., 2005). Matheos et al. (2005) found in their study that 78 per cent of students attending blended course delivery access online materials from home. The enhancement of accessibility is therefore an objective in most blended learning courses (Graham, 2006; Garrison & Vaughan, 2008; Kali et al., 2009). Knight (2010) asserts that the online component in blended learning benefits students through their equal access to online curricula, and that they can receive material tailored to address special learning needs.

Universities adopt blended learning to promote interaction among students and their faculty (Sharpe et al. 2006). Yuen et al. (2009) concur with Sharpe et al.; in their study 40 per cent of student participants reported that an online learning environment facilitates the exchange of ideas with instructors as well peers. Graham et al. (2005, p. 256) state that 'blended learning approaches are popular because they provide the convenience and accessibility of e-learning environments, while simultaneously promoting personal interaction'. Swan (2009) believes that the enhancement of students' engagement in learning is an advantage of blended courses, which led to its widespread adoption in higher education.

Students who participated in blended online learning reported the efficiency of communication and feedback in blended courses are the most beneficial aspects (Taradi et al., 2005). Lin, Q. (2008) studied the blended learning approach for pre-service teachers. The findings indicated that participants had a positive attitude toward blended instruction with 89 per cent reporting better understanding, 81 per cent valued prompt feedback, and 80 per cent noted improvement in the quality of the course. Further, over 60 per cent of participants noted that increased interaction with faculty and peers facilitated a learning community.

Of interest to this study's focus on instructors' websites, Kember, McNaught, Chong, Lam and Cheng (2010) explored educational features in online and blended courses regarding students' learning, communication skills and understanding of content. The study focused on website information presentation, and constructive dialogue features. The findings indicate that the information presentation features had less effect on student learning, whereas the use of features to promote interactions and learning activities encouraged students to learn deeply (highest learning approach), developed their communication skills and enhanced their understanding. Further, Nachmias and Segev (2003) also note that web-supported academic courses assist

student interaction, although the majority of course websites they studied were used to upload files or information. Yuen et al., (2009, p. 151) concur, noting that 'irrespective of the prevalent use of course management systems (CMS) in higher education, they are mainly used as storage places for digital resources, not platforms for exchanging ideas'.

For learning outcomes, researchers such as Dziuban et al. (2004) and Vaughan (2007) note findings on the positive impact of blended learning delivery on students' learning outcomes. Taradi et al. (2005) investigated student learning outcomes according to delivery modes. They examined the students' performance and satisfaction in two groups, blended online and face-to-face learning environments, in which both groups were introduced to the problem-based learning strategy, with better academic achievement and greater satisfaction with blended online learning. However, studying face-to-face, internet-based and blended learning formats, Reasons, Valadares, and Slavkin (2005) found significant differences between the delivery systems and stated that the internet-based format could possibly lead to better student outcomes than the other delivery systems.

As with all initiatives, the introduction of blended learning concepts has issues for students. Vaughan (2007) summarised these as time management issues, where students assume that less campus attendances mean less work; taking on the responsibility for learning, especially for first year students; appropriate access to and competency in the array of ICT tools that are now expected, such as the procedures for accessing online components, or downloading large files, or uploading reports and assignments. In the case of student-generated audio and video files, this requires a greater competency level. Students in blended courses therefore need access to support services for academic, course-related and ICT information, and advice (Garrison & Kanuka, 2004). According to Garrison and Kanuka (2004, p. 102) 'providing support for both students and teaching faculty (requires a) service support center . . . which includes . . . supports with the skills necessary to succeed in a blended learning environment'. Concannon et al. (2005) found blended learning factors where students can benefit from the experience include student characteristics, that is, prior online learning experience and self-efficacy; support factors such as instructor support and peer encouragement; course structure including the grading system and reward for the use of online materials; resources from the university such as technical resources and

support. The authors highlighted the peer encouragement and instructor support as the most significant factors.

A summary of student-oriented research follows. Learner satisfaction is a key element in a blended online learning environment, providing flexibility where learning can be paced, especially when students have work and family commitments. Taradi et al. (2005) found factors of motivation and enjoyment in virtual interactions, given that the blended learning environment combines virtual and physical attendances by students, the definition adopted for the purposes of this study. Zhao and Yuan (2010), among others, agree that research consistently reveal high levels of student satisfaction for blended courses. Student satisfaction in blended courses is found to be influenced by factors of convenience, accessibility, and quality of interactions although ease and relevance of use, flexible delivery and richness of content are also important. Knight (2010) finds that students who freely accessed online resources performed better than those with restricted access. Thus the availability and quality of technology influences the adoption of the online component in blended learning for undergraduates in Umm Al-Qura University in Makkah.

For rural and semi-rural students, travel times to attend courses are an issue so that blended learning delivery can improve their access to course material (Taradi et al., 2005). Other aspects include improved communication and interaction among students and their faculty; efficiency in communication and feedback is found to be beneficial (Sharpe et al., 2006). Further, in online learning students can receive material tailored to address special learning needs, and they are encouraged to learn deeply, which improve students' learning outcomes (Dziuban et al., 2004; Vaughan 2007).

Whilst researchers have moved from an early and negative assessment of distance learning to greater acceptance of the blended environment, there remain concerns regarding the delivery system. All course delivery is subject to university resources, curricula, quality of delivery and student attitude. Further, education theory has evolved from the didactic lecture toward the student as a learner and there is some debate whether delivery style and delivery system have merged so that student satisfaction concerns both (Derby & Williams, 2010). Nevertheless, for the purposes of this study, it is accepted that overall, students are satisfied with a blended online learning system.

3.4.6 Faculty Perspectives

Educator researchers consider blended learning delivery promotes effective learning (Ocak, 2011). The literature shows that instructors who experienced blended courses typically express their positive attitude towards blended delivery (Vaughan, 2007; Tang & Byrne, 2007). Blended learning approaches offer instructors greater delivery flexibility using varying learning styles to satisfy students (Bersin, 2004). Vaughan (2007) states that positive factors of the approach for instructors are reflected in the quality of interactions and flexibility of course delivery and learning. Tang and Byrne (2007) note instructors report the following advantages of blended approaches:

- the ability to deliver lectures synchronously and asynchronously
- opportunity to share digital course materials and learning objects with colleagues
- effective delivery of online tutoring
- effective course management and monitoring
- effective students assessment and feedback
- effective use of collaborative learning strategies.

To these, Vaughan (2007) added that blended courses were considered by faculty to improve their delivery style and ICT skills.

Interaction and communication between students and academics are essential in both online and face-to-face learning environments, flexibility and efficiency of communication are enhanced online, and social presence is a strength of the face-to-face learning environment (Graham, 2006). In the blended learning system, the integration of strengths from both learning environments maximises the opportunity for improved interaction (Garrison & Vaughan, 2008). Investigating factors influencing student participation in online discussions, Yuen et al. (2009) found that course design and technology availability were contributors, together with individual characteristics of the students. In this research, these factors evident in an emerging economy such as China are equally valid for Saudi Arabia. Yuen et al. (2009) advise that online activities should be compatible with in-class tasks and with continuous instructor support to facilitate online discussion. Prior experience of such learning environments, students' technology skills, and students' attitudes toward online discussions are also important issues when planning and designing online activities.

Instructors can adopt a variety of tasks and experiences to motivate students to access online materials and resources regularly and consistently (Knight, 2010). Knight advocates for an interventionist approach, where the faculty member paces the introduction of text, interactive materials and multimedia, requests student information or responses online, and integrates online components into student assessments (formative and summative). Shroff and Vogel (2010) examined whether a blend of online and face-to-face discussions could enhance student interest, finding no statistical difference. However, they report that the online discussion group was positive in their task more than the face-to-face group. Yuen et al. (2009) concur; when students participate in online discussions before attending lectures, they become more confident and well prepared in debate. It was important for participation that students understand and appreciate the reason for online discussions.

Technology may assist effective lecture interaction. Wessels, Fries, Horz, Scheele, and Effelsberg (2007) note the lack of interactivity during lectures. The authors posited that a wireless network could be introduced to create a new learning environment, the interactive lecture. Participating in interactive and conventional lecture meetings, participants preferred the interactive condition, also reporting higher levels of activity and perceived learning success. Nevertheless, there were negligible differences in learning results. In a study with physics undergraduates, Sharma et al. (2010) assessed the constructivist learning view that advocates for interactivity for student engagement. The authors reported on learning gains of two different projects over ten years using the Interactive Lecture Demonstration, where students collaborate to predict outcomes from real physics demonstrations. Project 1, from 1999 to 2001 had participant students who had completed high school physics, with learning gains for the control group up to 16 per cent, and for those exposed to the interactive lecture demonstration system up to 50 per cent. Project 2 did not involve a control group so that all students were exposed to the system, and learning gains from 28 per cent to 42 per cent were recorded. In another assessment of innovation in the lecture time, McGarr (2009) reviewed the literature on the effects of podcasting in lectures, that is, the distribution of audio or video files in digital format. The author found the literature broadly divided into three streams, substitutional, supplementary, and creative use. Substitutional use, the most common use of podcasting, provided past lecture recordings for student review and revision. The next type, supplementary, was in the form of

additional material, perhaps study guides or summarised notes, to broaden and deepen students' understanding. Interestingly, the creative use was that the students generated their own podcasts. This creative use could possibly be a factor in enhanced student use, given the proliferation of hand-held devices that could record events or phenomena to illustrate online assignments.

Online higher education courses are considered inferior to those of the conventional lecture delivery (Zhao, 2003). In a review of the benefits of online education Zhao found that cost, efficiency savings, and innovation were the prime factors for implementation. To measure both the process and outcomes of online learning, the author proposed an adaptive framework to assist quality control. However, Hwang and Arbaugh (2009) did not agree, stating that little is known of the impact of ICT usage in higher education on measurable knowledge acquisition. In a study of discussion forums, the authors found that the online discussion tool, Blackboard, predicted multiple-choice test performance, whereas no face-to-face feedback-seeking behaviours with either faculty or peers had a significant influence on test results. Hwang and Arbaugh (2009) found that underlying attitudes of those using ICT were competitive rather than cooperation, where cooperation rather than competition is often required for workplace effectiveness. Similarly, in a meta-review, Arbaugh et al. (2009) found that common business study blended learning research streams were outcome-based studies comparing attendance and online modes. The authors stated that comparison studies suggest that online courses are at least comparable to classroom-based courses in achieving desired learning outcomes, however findings of other course variables diverge.

In a study on online implementation of learning delivery, Wallace and Young (2010) explained that blended learning initiatives in universities were often taken by individual instructors without explicit institutional direction. In a case study, the authors used the redesign of a single graduate program for blended delivery to illustrate policy and process issues that arose. From the decision to use blended learning, considerations on the nature of the delivery for individual courses versus entire programs and policy changes required. Specific areas include the approval process, resources, and instructor responsibilities, workload, and training. The findings suggest that policy review in a changing environment is important because it affects institutional values and protocols,

sometimes reinforcing practices, and at other times suggesting accepted protocols may be ill-suited to the educational opportunities that ICT implies.

Faculty introducing blended learning therefore face challenges from institutional support, through to determining clear benefits for students. These challenges, and the added depth and breadth of blended course structures, affect successful adoption (Ocak, 2011). Vaughan (2007) pointed to instructors' challenges in blended courses as an increased time commitment, the lack of support and resources for course redesign, attaining further competency in ICT skills and the pedagogy of the blended model, and university policy regarding change in this area. Moreover, Ocak (2011) nominated curricula issues as complexity of instruction, planning and administrative matters. Graham et al. (2005, p. 257) agreed, stating that "faculty may hesitate to try blended approaches because they are not sure that they have departmental support or that it fits into the culture of the department or greater institution".

In summary, researchers, and educators who have experienced blended learning delivery, generally find that effective learning is promoted through greater flexibility that allows the use of varied learning styles (Bersin, 2004). Of primary importance, interaction and communication between students and their instructors are promoted through blended learning with its mix of online and lecture attendances (Graham, 2006). Of interest to this study, Yuen et al. (2009) found course design and technology availability contribute to successful implementation, and student characteristics in access to ICT, competency, prior experience with online learning and attitudes toward online discussions are important issues. Knight (2010) advocated for an interactive online approach to raise student interest, and that it is important that students understand and appreciate the reason for online discussions. To promote an innovative approach to lecture attendance, Wessels et al. (2007) posited a new learning environment, the interactive lecture where students use interactive hand-held devices to access the lecturer's material and ask questions; this is supported by Sharma et al. (2010) in their long term study. Podcasting is useful for past lecture records, additional material, and for students to generate their own podcasts. Underlying attitudes of those using ICT may be competitiveness rather than cooperation, where cooperation rather than competition is often required for workplace effectiveness.

Whilst ICT initiatives in universities are often taken by individual instructors to institute a culture of blended learning, policy and process structures require

consideration of the approval process, resources, and instructor responsibilities, workload, and training. The introduction of blended learning therefore faces challenges from institutional support through to clear benefits for students. Increased time commitment, lack of institutional support and resources, ICT skills and course redesign are factors and the pedagogy of the blended model are factors in change to institutional direction toward ICT.

3.5 Theoretical frameworks

This section highlights the importance of understanding particular theoretical frameworks that underpin the use of ICT in education generally. The theories and models in this section will assist in understanding the development and success of blended online learning environments. Central to this research is the acceptance of ICT use in education. Whilst early researchers sought to isolate the challenges of adoption of the technology itself, particularly in the pedagogical fields centring either on teacher or student, the discussion now moves onward to the role of the internet, support media in the lecture, and mobile devices. Theoretical modelling is used to study the acceptance rate of ICT, and this section briefly examines the evolution of innovation theory and the extant technology adoption theories and models to underpin technological adoption in Saudi Arabia.

3.5.1 Diffusion of Innovation Theory

In 1954, a research team at the Iowa Experimental Station headed by Rogers (1962) was studying barriers to innovation, and the researcher continued over the decades to explore factors inherent in either adoption or rejection of innovation, resolving these findings into the theory of diffusion of innovation (Rogers, 2003). Diffusion, according to Rogers (2003, p. 5) is "the process by which an innovation is communicated through certain channels over time among the members of a social system". The key elements in the diffusion model are the innovation itself, the communication media, rate of adoption and the society in which the innovation permeates. Rogers (2003) placed those influenced by innovation into five adopter groups:

- innovators: 2.5 per cent of adopters are firms or individuals who immediately adopt the innovation; they may be social trendsetters or competitive technology firms
- early adopters: 13.5 per cent of the adopters make an earlier decision; they are educated and knowledgeable about the industry or society where the innovation occurs
- early majority: a third of the adopters (34%) have a reasonable social status, however, they tend to caution in new trends or innovation
- late majority: another third (34%) are sceptical and move late to adopt the change
- laggards: the remaining 16 per cent adopt the innovation by default. Last adopters represent the remainder who accept the technology due to social or commercial pressure. They represent about 16 per cent of adopters.

The diffusion of innovation theory and its attendant models are now widely used, including in the field of education (Lundvell, 2010; Redmond, 2003; Woodside & Biemans, 2005). Of importance to this Saudi study, Lundvell (2010) stated that as knowledge is a primary resource, learning is a critical competency. Socially embedded and interactive learning depends on the institutional and cultural context, and the traditional role of national governments in guiding that process is now challenged by international innovation and reform.

3.5.2 Technology Acceptance Models

Following on from the diffusion models, Fishbein and Ajzen (1975) posited that an individual's actions are predicated by intention which is moderated by attitude and social norms. This leads to the theory of reasoned action, where behaviour intention is influenced indirectly through attitude and social norms. However, the theory of reasoned action was subject to definitional risk between attitudes and norms, which may be interchangeable; and that environmental issues may arise (Ajzen, 1985). Ajzen therefore proposed the theory of planned behaviour to overcome these limitations through dimensions of attitude, subjective norms, perceived behavioural control, and self-efficacy. This was the basis of Davis' (1986) technology acceptance model (TAM).

The TAM was proposed by Davis (1989) to test the acceptance of users of a new information system. As noted above, Davis developed the theory from Fishbein and

Ajzen's (1975) reasoned action theory and the model records the effects of external variables on internal beliefs, attitudes ,and intentions to the adoption of technology (Legris, Ingham, & Collerette, 2003). The model was further developed in the 1980s under contract to IBM Canada to evaluate consumer interest on a range of applications to guide investment in new product s (Davis & Venkatesh, 1996). The TAM posits that perceived usefulness (belief in enhanced task performance) and perceived ease of usage (belief in effort to be saved) can explain usage of new technological products. In a meta-analysis of extant literature on TAM and with relevance to this Saudi study, Schepers and Wetzels (2007) selected three factors for their research, type of respondents, type of technology, and culture. They found a significant influence of subjective norms on perceived usefulness and intention to use. In the field of education, Martinez-Torres et al. (2008) studied the use of e-learning tools in the European Higher Education area in support of life-long learning. They posited that the successful use of internet-based tools depends on a user's behaviour. Using the TAM, they were surprised to find that perceived ease of use was not a significant factor in student attitude or intention to use the tools.

There were other issues associated with TAM. Using a cross-cultural study of USA, Switzerland and Japan, Straub, Keil, and Brenner (1997) tested the TAM using Hofstede's dimensions as indicators. Hofstede's cultural dimensions are individualism-collectivism, uncertainty avoidance, power distance, masculinity-femininity, and long-term orientation (Soares, Farhangmehr, & Shoham, 2007). Straub et al. (1997) found that TAM did not indicate ICT usage in Japan through Hofstede's factors of individuality, uncertainty avoidance, power distance, and masculinity; so that cultural factors can be an issue to technology acceptance. This is important for Saudi Arabia, where the cultural factors of power distance and uncertainty avoidance prevail, and this is corroborated by empirical evidence such as that of Alebaikan and Troudi (2010a). TAM2 was developed to address perceived issues arising in TAM by Venkatesh and Davis (2000), who argued that TAM2 is 'a theoretical extension of the technology acceptance model that explains perceived usefulness and usage intention in terms of social influence and cognitive instrumental process' (p. 186). TAM2 includes variables of job relevance, result demonstrability, output quality, image, subjective norm, and experience and voluntariness (Venkatesh & Davis, 1996). These values were supported

by Suebsin and Gerdsri (2009) who added additional determinants, clarification of project scope, individual commitment, and communication.

Many studies successfully tested the psychological and socially oriented concepts of TAM2. Sang, Lee, and Lee (2009) found support for perceived usefulness, relative advantage, and trust in applications of e-government; and that the determinant of perceived usefulness included output quality and image. In a study of adoption of the business potential of websites, Wu, Chou, Weng and Huang (2008) found that perceived ease of use was significant, and that perceived usefulness was verified by job relevance, result demonstrability, and output quality.

3.5.3 Unified Theory of Acceptance and Use of Technology

In 2003, Venkatesh, Morris, Davis and Davis (2003) investigated TAM and its hybrids with the purpose of producing a unified model that integrates the theory of reasoned action, TAM and its hybrids, the theory of planned behaviour, the motivational model, personal computer utilisation model, social cognitive theory and innovation diffusion theory. The unified theory of acceptance and use of technology (UTAUT) model aims to explore user intentions to use an information system. It comprises four core determinants of intention and usage, performance expectance, effort expectancy, social influence, and facilitating conditions. The researchers used two studies to empirically validate the UTAUT model, which proved to have high explanatory ability (Venkatesh et al., 2003). Other researchers successfully tested the unified model such as Carlsson, Carlsson, Hyvonen, Puhakainen, and Walden (2006) with adoption of hand-held devices; Al Awadhi, and Morris (2008), adoption of e-government; Oshlyansky, Cairns, and Thimbleby (2007) on cross-cultural adoption of technology. However, all had reservations and suggested further research paths.

The UTAUT model is current in 2011 and widely adopted, although it represents at best only approximations of intention of technology acceptance. Relevant to this study of ICT adoption in higher education, Al-Sobhi, Weerakkody, and Al-Busaidy (2010) used UTAUT for e-government adoption in Madinah, finding influencing factors of internet access, computer literacy, perceived security and privacy (trust), and awareness in using e-services influencing online use of e-government services in Saudi Arabia. In a comparison study, Al-Sobhi and Weerakkody (2010) further posited that the role of intermediaries could be explored in ICT adoption. In this case, adoption may

be influenced by citizen training, improved infrastructure and financial services. This shows that, whilst poor internet access and low levels of competency deterred online activity by citizens, the government's initiative of providing public internet shopfronts to familiarise citizens with e-government, online banking and email offices has had mixed success. In this environment, UQU faculty's commitment to online blended learning may require considerably more assistance and encouragement than the university administration was providing.

3.6 Chapter Summary

This chapter reviewed literature relevant to the use of ICT, in particular blended learning environment in higher education, which frames this study. The basis of this communication is pedagogy, and a brief review of learning theory is presented regarding the transfer from instructor to student in a collaborative learning environment. The key aspects of the previous discussions are that effective learning must be interactive; and ICT can be implemented in ways that enhance interactions and communications. This literature review is an account of extant research which relates to the faculty of Umm Al-Qura University in Makkah, Saudi Arabia, establishing blended online learning environments in their courses. In this study, the learning environment can be supported through ICT.

For the young individual, the structural integration of operations to develop insight was held by Inhelder and Piaget (1958) to be presented as a range of intelligent acts that form holistically from interdependent structures. Biggs (1987) discussed the change in pedagogy through exploring an individual's increasing awareness of the learning process and the ability to control learning. Vygotsky (1978) through the use of the zone of proximal development expressed the level of support an individual required in performing a task. This learning environment placed the instructor as a facilitator in the construction of knowledge. Bandura (1977), however, posited that learning takes place in a social environment, using behavioural, cognitive, and environmental influences to explore the problem. Social learning theory therefore encompasses attention, memory, and motivation and is thus aligned to others through communication channels.

For higher education, the value of study is in the longer term, in identifying inputs and processes rather than showing immediate results (Coleman et al., 1966). Kolb and Kolb (2005) concur to the extent that for all stakeholders in the education process, continuing assessment is required for the institution, faculty and curricula, given the pace of change, globalisation, and the socio-economic outcomes required for graduates. Astin (1999) posited that a highly involved student is one who expends considerable energy in studying, whilst the underachiever and less successful student participates less. Given ICT tools currently available, a greater range of interceptions and communication paths are now available to assist motivation. Several studies are of particular interest as findings match with factors in the Saudi learning environment. Choy (2002) found that underachieving students who follow friends may drop out. However, they tend to enrol again after some years, which is useful in aspects of lifelong learning for Saudi Arabia. In considering Moore's (1989) forms of interaction, Shana (2009) found that online discussion groups had a positive impact on the generation of knowledge, although in Saudi Arabia Alebaikan and Troudi (2010b), and Ibrahim, et al. (2007) raised long standing issues for online discussion in blended learning as infrastructure, curriculum delivery, competency in the medium of online discussion, plagiarism, and demands on time. Bui (2002) investigated education pressures on students whose parents had no higher education experience, finding a desire to gain status and help their family financially, however, they feared failure which may have acted as a motivator to succeed. Tieben and Wolbers (2010) find that students from lower socio-economic backgrounds do not capitalise on their achievements, compared to the average population.

In considering emerging technologies, the sparse research rapidly dated, as many scholars found that structural constraints affected ICT adoption. Thus the emerging uses of ICT were explored, Simsim (2011) noted the strong growth of email usage by young Saudis with their mobile communications and entertainment sites. The adoption of multimedia through digital devices and software for any form of merging of audio, visual and interactive communications was noted, podcasts, social network evolution, and web portals for specific purposes, such as Facebook. UTAUT, an approximation of intention of technology acceptance, was used by Al-Sobhi et al. (2010) to measure e-government adoption in Madinah. The researchers found that factors such as computer literacy, access to the internet, and perceived issues of security

influenced online use of government services. These factors also affect faculty at Umm Al-Qura University in Makkah. The findings in this review are that as ICT is now ubiquitous, faculty members must use these resources fully to deliver adequate services to their students. An ICT-based curriculum is dependent on the attitude and capabilities of each instructor, both online and in person.

The forums for learning are thus physical and digital presence, and the balance between these modes is the final subject, blended learning. The finding for this study is that learner satisfaction is the key element in a blended online learning environment, providing motivation and enjoyment in virtual interactions (Taradi et al., 2005; Zhao & Yuan, 2010). For distance students, travel times to attend courses is an issue (Taradi et al., 2005); efficiency in communication and feedback (Sharpe et al. 2006); and they are encouraged to learn deeply (Dziuban et al. 2004; Vaughan 2007). The findings of this research are that, overall, students are satisfied with a blended online learning system. For the purpose of delivering the curriculum, Yuen et al., (2009) and Knight (2010) assert that course design and technology availability assist an interactive online approach to raise student interest. Wessels et al. (2007) and Sharma et al. (2010) propose bringing these distance techniques into the lecture itself, to allow greater use of media resources and enhanced communication. This is of benefit to graduates as well in their pursuit of lifelong learning as changes in discipline pedagogies and ICT continue.

The next chapter illustrates how the review of literature, discussed in this chapter, framed the design of the research methodology. It provides insight into the selection and development of methods in light of previous studies and findings.

Chapter 4 Methodology

This chapter presents the methodology employed in this study, and explains the research design and methods used to explore the experiences and views of faculty members and students towards blended learning environment at the Umm Al-Qura University (UQU). The chapter consists of the following sections, a discussion on research design, sampling procedures, quantitative and qualitative research methods and instruments, data collection procedures, and data analysis.

4.1 Research Design

Instructors at UQU developed websites as supplementary instructional resources for their lectures, as discussed in the context chapter. This study investigates the influence of these websites on teaching, learning, and interactions through the perspectives of instructors and students.

The main research question which the study examined was how do instructors and undergraduate students at UQU perceive the implementation of blended learning? The study has six sub-questions:

Q1: How useful do instructors and their undergraduate students at UQU find blended learning environments?

Q2: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the instructor and student interactions?

Q3: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the learning quality?

Q4: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the teaching quality?

Q5: How do male and female students differ in their perceptions of blended learning at UQU?

Q6: What are the factors that affect the adoption of blended learning at UQU?

A triangulated mixed methods design was selected for this study, in which both quantitative and qualitative data are collected concurrently (Creswell, 2009). In the mixed methods approach, the researcher aims to achieve greater validity through studying the corroboration between quantitative and qualitative data (Creswell, 2009; Creswell & Plano Clark, 2007; Doyle, Brady & Byrne, 2009). The design approach is therefore appropriate to determine convergence of perspective and corroboration of results from the different perspectives of faculty and students, and was thus selected for this study. The following Figure illustrates the study framework.

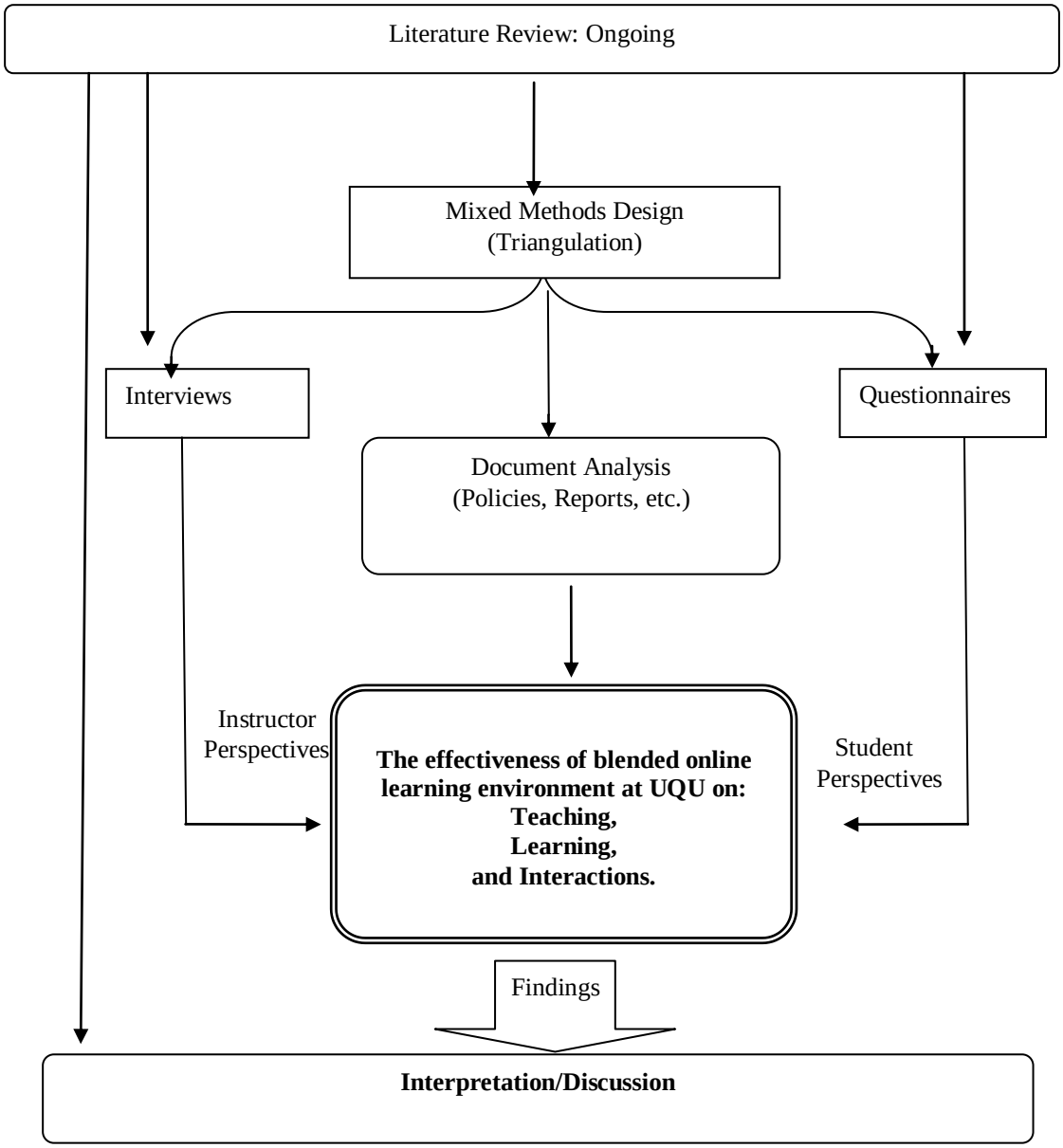


Figure 4.1 *Research Framework*

In research design, the study's plan and procedures demonstrate the consistency of decisions from broad assumptions to detailed methods of data collection and analysis (Creswell, 2009). The research design consists of the intersection of three main components, philosophy (such as postpositive, constructivist, or pragmatic), strategies of inquiry (such as quantitative qualitative, or mixed methods), and methods (such as questionnaire, interviews, analysis procedure) which present different views of reality, values, and methodology (Creswell, 2009; Doyle et al., 2009). Crotty (1998) asserted that a research process contains four main elements which inform one another, epistemology, theoretical perspective, methodology, and methods. The compatibility between these elements forms the research design. In fact, methodologists use the terms world views, paradigms, epistemologies, ontology, and theoretical lens interchangeably to demonstrate the philosophical assumptions of research (Creswell, 2009; Crotty, 1998; Doyle et al. 2009; Lincoln & Guba, 2000; Mertens, 1998; Mertens, 2005). According to Guba and Lincoln (1994, p. 105) a research paradigm is "the basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways".

Until the early 1980s, quantitative approaches associated with the positivist philosophy were the accepted paradigms in educational research; mixing quantitative and qualitative approaches in a single research study was not condoned (Kemper, Stringfield, & Teddlie, 2003; Guba & Lincoln, 1994; Tashakkori & Teddlie, 1998). By the 1990s, researchers were considering both quantitative and qualitative approaches; thus supporting a pragmatic view that both approaches were important (Johnson & Christensen, 2008). In this view, consequences were more important than the process and what 'works in practice' was more important than the philosophical assumptions (Creswell, 2009; Doyle et al., 2009; Johnson & Christensen, 2008.). Pragmatic researchers opened research to all possibilities of analysis to seek practical ends. Morgan (2007, p. 48) therefore argued that the pragmatic paradigm is "a basis for supporting work that combines qualitative and quantitative methods". The philosophical assumptions of pragmatism enable the mix of both quantitative and qualitative methods through the research process, and its use within other paradigms, such as transformative or constructivist (Mertens, 2005; Mackenzie & Knipe, 2006; Somekh & Lewin, 2005; Tashakkori & Teddlie, 2003).

Mixed methods research is recognised as a valid research approach that provides understanding of a research topic, although it can be time consuming and expensive (Johnson & Christensen, 2008; Johnson, Onwuegbuzie, & Turner, 2007; Mertler & Charles, 2011). In mixed methods research, adding narrative data to numbers may enhance findings, and through convergence and corroboration, provide stronger evidence for a conclusion than when only a single method is used (Johnson & Onwuegbuzie, 2004). However, for a mixed methods approach, researchers require sufficient knowledge of both quantitative and qualitative data collection methods and analysis (Creswell, 2009; Doyle et al., 2009; Mertler & Charles, 2011). According to Creswell (2009, p. 4) mixed methods research is "an approach to inquiry that combines or associates both qualitative and quantitative forms" in the development of research in the social and human sciences.

Methodologists categorised mixed methods research into different designs or typologies. Initially, Greene, Caracelli, and Graham (1989) presented five arguments for mixed methods research:

- triangulation (the corroboration of results from each method)
- complementarity (the results from one method used to elaborate, illustrate, clarify the results from the other)
- development (one method's results used to develop those of the other)
- initiation (the results from two different methods help to discover paradoxes and contradictions that can lead to a reframing of the research question)
- expansion (using different methods for different inquiry components to expand the span and range of research).

Mixed methods designs were further differentiated by Creswell (2009) into six categories, based on four criteria, timing (concurrent or sequential), priority of methodology (quantitative, qualitative, or equal), type of implantation process (integrated, connected, or embedded), and theoretical perspective (explicit or implicit). Using these criteria, the researcher proposed six types of mixed method designs sequential exploratory, sequential explanatory, sequential transformative, concurrent triangulation, concurrent nested, and concurrent transformative. The design style chosen for this research was therefore concurrent triangulation, as it was deemed the most appropriate response to answer the research questions. Further, for a study of blended learning at UQU, this approach facilitated the collection and analysis of data from the

two sample groups, students and instructors, as described below (Creswell, 2009; Doyle et al., 2009).

4.2 Sample Selection

In 2008, individual websites were made available to the faculty on the UQU domain as a new resource for curricula and class information. In 2009 when this research commenced, the integration of these websites was at an early stage and the numbers of instructors and students using the websites were limited. The selection of participants for the study was also limited to those accessing faculty websites on the UQU portal; hence, the sample was purposefully selected (Patton, 1990).

The selection process commenced first by identifying faculty websites; then by selecting instructors and students relevant to those websites. Two approaches of purposeful sampling were used, multi-stage purposeful and random purposeful sampling (Miles & Huberman, 1994; Onwuegbuzie & Leech, 2007). Onwuegbuzie and Leech (2007) explained that in multi-stage purposeful sampling, staged sample selections are sequential; whereas in random purposeful sampling "the researcher chooses cases at random from the sampling frame consisting of a purposefully selected sample" (p. 113). In this study, the multi-stage purposeful sampling strategy was employed in the selection of websites and instructors, while the random purposeful sampling strategy was used to select the student participants. The following sections discuss these processes.

4.2.1 Website Sample

To provide robust data to answer the research questions, all study participants had to have experience of a blended online learning environment at UQU; thus the target population for this research was limited to those who could access fully constructed faculty websites from the UQU portal. From this population, websites were identified that exhibited greatest breadth and depth of content; that is, a purposefully selected sample (Miles & Huberman, 1994; Onwuegbuzie & Leech, 2007). In 2008-2009, online learning at UQU was in its early stages and promotion of the new technological resource relied on each instructor's initiative and interest.

In 2009, from an academic staff of 2312 (55% male, 45% female), there were 76 male instructor websites and three female faculty websites fully constructed and

accessible from the UQU portal. A further 38 were still being constructed and were thus excluded from this study. The websites varied in their design, objectives, and educational content. An evaluation checklist (Appendix E) was designed by the researcher to assess the configuration and content of each instructor website. The objective was to select ten websites that offered a superior online experience, and through this selection to select the study participants (students and instructors).

While a review of the literature illustrated the complexity of evaluating online learning programs or educational websites, the aim of the evaluation checklist in this study influenced its design and content. The main objective of the evaluation checklist in this stage was to facilitate the selection of the study participants. The researcher therefore limited selection to the criteria that are meaningful to the study aims and kept the checklist at a minimum.

Criteria for the evaluation checklist for the instructor websites were sourced from evaluation research findings including El-Tigi (2001), Hwang, Huang, and Tseng (2004), Khan (2005), and Jolliffe, Ritter, and Stevens (2001). Key elements of research findings in online learning environment evaluation are accessibility, design, content, communication, and interactivity features (Boklaschuk & Caisse, 2001; El-Tigi, 2001; Khan, 2005; McClue, Esmail, & Eargle, 2006). Thirty three points, rated present or not present (yes/no), were identified for the purpose of ranking the faculty websites under the key elements. Further, the researcher endeavoured to develop the checklist in a way that all items are clear, concise, and in groups to increase the reliability of the evaluation results (Bichelmeyer, 2003; Scriven, 2000).

4.2.2 Instructor Website Evaluation

There were ten potential instructor websites identified on UQU's portal, however, nine instructors agreed to participate in this study and the characteristics of their websites are shown in Table 4.1.

Table 4.1
Instructor Website Evaluation Criteria

Evaluation Criteria	**W1**	**W2**	**W3**	**W4**	**W5**	**W6**	**W7**	**W8**	**W9**	**%**
Website Accessibility										
Minimal loading time	√	√	√	√	√	√	√	√	√	100
Help feature to assist users.	√				√	√				33
Clear navigation (headings, toolbar)	√	√	√	√	√	√	√	√	√	100
Target audience (course name, section)	√	√	√	√	√	√	√	√		88
Section for:										
Course-enrolled students	√	√	√	√		√	√			66
UQU students only			√							11
All	√	√	√	√	√	√	√	√	√	100
Web Design										
Text menu interface	√	√	√	√	√	√	√	√	√	100
Graphic interface (images, icons)	√	√	√		√	√	√			66
Combination of text and graphics	√	√			√	√				44
Consistent layout		√		√		√	√	√	√	66
Legible text	√	√	√	√	√	√	√	√	√	100
Colourful, easy to read	√	√	√	√	√	√	√	√	√	100
25% free screen (blank space).	√	√	√	√	√	√	√	√	√	100
Home page linked to child pages	√	√	√		√	√	√	√	√	88
Child pages linked to home.	√	√	√		√	√	√			66
Interactivity Features										
Search feature	√	√	√	√						44
Multimedia features:										
Graphics/pictures	√	√	√	√	√				√	66
Animation	√	√		√						33
Audio	√	√		√						33
Video	√	√	√	√					√	55
Other										0
Interactive activities:										
Games		√								11
Chat										
Discussion board	√		√		√		√			44
Quizzes	√	√	√	√						44
Surveys/poll	√	√	√	√	√					55
Other		√*								11
Content										
Recently updated (< one week)	√	√	√	√	√	√	√	√	√	100
Course syllabus	√	√	√	√	√	√	√	√		88
Informs students of:										
Day and time of classes	√	√	√	√	√	√	√	√	√	100
Course description	√	√	√	√	√		√	√	√	100
Course objectives	√	√	√	√	√	√	√		√	88
Course prerequisites	√		√	√						33
Course requirements	√	√	√	√	√	√	√			77
Course calendar	√		√	√						33
Grading system	√	√	√	√	√	√				66
Assessment tasks	√	√					√	√	√	55
Continued under										

Evaluation Criteria	W1	W2	W3	W4	W5	W6	W7	W8	W9	%
Content (continued)										
Exercises	√	√	√							33
Previous 'answered' exams								√		11
Previous 'not answered' exams	√			√	√				√	44
Lecture notes	√	√	√	√	√	√	√	√		88
Provides students with their results	√	√			√	√				44
Optional course readings	√	√	√	√						44
Required course readings	√	√	√		√	√			√	66
PowerPoint lectures, presentations	√	√	√	√	√	√	√	√		88
Links to relevant websites	√	√	√	√	√	√	√	√	√	100
Link to instructor's CV	√	√	√	√	√	√	√	√	√	100
Communications										
Instructor's contact details:										
Office number and location	√	√	√	√	√	√	√	√	√	100
Office phone	√	√	√	√	√	√	√	√	√	100
Mobile phone	√									11
E-mail address	√	√	√	√	√	√	√	√	√	100
Office hours	√	√	√	√						44
Synchronous student-instructor online communication										
Instant messaging										
Videoconferencing										
Other										
Asynchronous student-instructor online communication:										
E-mail	√	√	√	√	√	√	√	√	√	100
Discussion board - Forum	√		√		√		√			44
Other		√ *								11
Total Features	48	44	40	37	35	31	29	24	24	

*The website offers a comment box for students.

Table 4.1 shows that accessibility to the instructor websites included in this study was good, although the majority did not include help features for the users. The websites were accessible to university users through UQU's homepage, loaded quickly and were easy to navigate. The majority of the instructor websites clearly identified their target audiences or the courses they served. Some instructors had limited access to their enrolled students for particular sections.

The websites were well designed, using at least a text menu interface, with six instructors integrating graphics or images on the interface to assist navigation. The contents of the websites were easy to read, with blank spaces and well-matched colour of font and background. The majority of the websites had consistent layouts providing links to the sub-pages.

Further, the educational contents of the websites in this study were satisfactory or better. The websites were frequently updated, and provided sufficient administrative and course information such as timetables, syllabus, and objectives. All but one of the websites offered lecture notes or presentations. Relevant references or websites were included on all instructor websites. While four websites had samples of previous examinations, only one website provided answers. There were limited exercises, with three websites displaying these.

On the other hand, just four of the websites in this study consistently used interactive features such as multimedia resources and interactive communication tools. The websites were limited in the use of engagement tools such as games, live chat, or discussion forums that offered interest to students to engage in these activities. While the websites provided instructor contacts details such as email address and office telephone number, none offered synchronous communication channels for direct communication between students and their instructors. Further, most of the websites did not offer students features that allowed students to communicate with classmates or contribute to the course contents. Four websites only offered access to discussion forums and another provided a comment box.

Sufficient features on a UQU instructor's website thus validated eligibility for the study sample. Unfortunately, the sample criteria related only to the male faculty, as two of the female websites had no instructional materials and the third allowed only female student access. However, two male instructors selected were teaching both male and female students.

4.2.3 Instructor Sample

Following the website evaluation process, email invitations were sent to the ten respective instructors to participate in the study (Appendix F). The letter of invitation was designed in accordance with RMIT University regulations, and approved by the University Research Ethics Committee (Appendix J). Further, a letter of approval was required from the research administration at UQU to conduct this study, which noted the significance of the study and encouraged instructors to cooperate with the researcher (Appendix I). The invitation included the study title and objectives, reasons for the approach to the particular instructor, and the instructor's rights if they agreed to participate. After two weeks towards the beginning of the university semester, there

were six responses, and after further requests, three more acceptances were received, a total of nine instructors comprised the faculty sample for this research.

4.2.4 Student Sample

Each faculty member was responsible for varying numbers of classes and students. On arrival in Saudi Arabia, the researcher commenced a selection process to identify student class cohorts from which to invite participants for the study, setting criteria for student selection to achieve comparable representatives of gender and college. The criteria were:

- if the students were from the same faculty and the same gender, two small classes ranging from 15 to 30, or one large class ranging from 31 to 60, would be selected from each instructor's student population
- if the students were from different faculty or different gender, the largest two classes would be selected from each instructor's student population.

Thirteen classes were selected, comprising 504 students who potentially accessed at least one of the instructor websites (Table 4.1).

4.2.5 Summary

A systematic approach to this research was undertaken. To address the research statement regarding the influence of faculty websites on students' learning, a mixed methods approach was selected. This approach comprised quantitative and qualitative data collection, however the sample populations for the study first had to be identified. Whilst online learning was new to UQU in 2009, the university had made provision on its portal for its faculty to develop individual websites for curriculum matters and supplementary learning material so that students could access the necessary information out of hours.

In this study, the instructor websites were assessed against a researched checklist to identify the ten optimum instructor websites. This in turn led to contact with the instructor and letters of invitation to the purposeful sample of ten instructors from diverse colleges at UQU to gain their cooperation. The 504 undergraduates associated with these instructors thus comprised the sample for the quantitative data collection and analysis, a questionnaire.

4.3 Quantitative Data Collection

The questionnaire is an efficient method of collecting a considerable amount of data from a wide range of people in a relatively short period of time (Creswell, 2009; Gillham, 2000; Teddlie & Tashakkori, 2009; Wilkinson & Birmingham, 2003). A carefully constructed questionnaire can reduce bias, whilst the anonymity of written questionnaires may elicit more truthful responses (Gillham, 2000; Wilkinson & Birmingham, 2003). Further, quantitative data is subject to statistical analysis which is time-efficient (Johnson & Christensen, 2008). Noting the flexibility of the survey instrument, Johnson and Christensen (2008, p. 17) state that "questionnaires are not restricted to a single research method", they can be used in a mixed methods design in which participants self-report their beliefs, attitudes, perceptions and feelings of a topic under study. This form of data collection is enriched by gathering demographic information on the participants (Creswell, 2008).

A self-reporting questionnaire was employed to study a wide range of UQU undergraduates. The survey sought the participants' views of the instructors' websites as enhancements to their classroom learning experiences. The questionnaires were also useful for eliciting the students' demographic information and their computer and internet experience. The quantitative findings were part of the mixed methods triangulated design which also included qualitative findings and secondary information through documentation.

4.3.1 Questionnaire Construction

Gillham (2000, p. 15) states that "The logical starting point for developing a questionnaire is to ask what your broad aims are". Student questionnaires in this study sought the participants' views and experiences of blended learning environments at UQU. To collect data which responded to the research questions, the students' survey questions were adapted from questionnaires by Alaugab (2007), Alferaihi (2003), Al-Arfaj (2001), Chandra (2004), Landry (2003), Osman (2005), and Vaughan (2007). Johnson and Christensen (2008) and Wilkinson and Birmingham (2003) considered that to gain satisfactory responses, questionnaires need to be clear, short, and unambiguous. Gillham (2000) concurred, noting that a distributed questionnaire cannot be corrected.

These principles were followed in this research. Further, an Arabic translation was necessary as the study was conducted in Saudi Arabia.

The questionnaire in this study extended to five-pages after considerable revision to restrict its length, as Gorard (2003) recommended that self-administered questionnaires should be less than eight pages. Furthermore, to enhance the clarity and attraction of the questionnaire, tables, headings, and diversity of fonts were used. The final questionnaire consisted of five sections relating to the research sub-questions, demographic information, computer and internet experience, students' perceptions of their instructor websites, open-ended questions, and factors that affect the adoption of online learning at UQU (Appendices A & B). These were constructed on themes pertaining to usefulness, learning, interactions, and obstacles.

The first section contained the participants' demographic information; the five items were gender, undergraduate level, college, study load, and home distance from UQU campus. Besides providing a description of the participants, this information could be analysed to compare demographics with a range of perceptions. The next section explored students' computer and internet experience to again assess this information within the context of subsequent experiences and views. The second section consisted of home access to computers and the internet, computer/internet training, previous experience of a blended online learning environment, frequency of internet access, and frequency of their instructor website access. The last item determined the skill level of the participant on computer and internet applications using a five-point Likert scale of 1, 'none', 2 'inadequate', 3 'adequate', 4 'good' 5 'excellent'.

The third section was designed to elicit students' perceptions regarding:

- the value (usefulness) placed on instructor websites as a supplementary resource for classroom teaching and learning
- the influence of the website on learning
- the influence of the website on student and instructor interactions and communications.

This section consisted of 26 items (nos. 13-39) divided between the three scales of usefulness, learning, and interactions. A four-point rating scale was used for this section, in which 1 represented 'strongly disagree', 2 'disagree', 3 'agree', and 4 'strongly agree'. The central category 'undecided' was omitted, as Johnson and

Christensen (2008) opined that a researcher could choose whether to include the neutral option. However, there was a risk that the absence of a neutral response could either draw a decision more effectively from participants, or the item may be avoided altogether.

The third section was concerned with the usefulness, learning, and interactions scales as themes for data collection. The usefulness scale or theme contained items relating to potential advantages of the instructor websites, that is, increased accessibility, flexibility, productivity, course satisfaction, confidence in using internet communications, and cost-effectiveness. The learning scale consisted of items related to the potential influence of instructor websites on students such as learning experiences, engagement with the topic, individual queries, course results, learning resources, and revision of course material. The interactions scale included student-instructor interaction, student-student interaction, communication channels, and class collaboration. Items under each scale were based on the key findings of the literature review in this study.

The fourth section comprised open-ended questions, designed to give students the opportunity to express their opinions. The questions focused on the advantages and disadvantages of instructor website usage, and their recommendations for further development of the faculty websites; that is sufficient to elicit an open response without tiring the participant for the remainder of the items. The last section dealt with factors that may compromise students' use of online learning environment at UQU, as there was inadequate ICT infrastructure and support. Another four point scale, 'strongly disagree' to 'strongly agree' denoted the participant's opinion on the adequacy of the ICT infrastructure of UQU, ICT skills and technical support, support for online learning. Other points were the student's opinion of course standards and the value placed on faculty websites, and opportunity to comment.

4.3.2 Questionnaire Validation and Reliability

Validity and reliability are crucial in data collection instruments (Bryman, 2008; Mertens, 2005; Johnson & Christensen, 2008). Validation is required as evidence that the instrument measures what it is designed and intended to measure; and reliability refers to a reasonable assumption that the data collection instrument would produce similar data if conducted on similar respondents under equivalent conditions (Mertens,

2005). Thus for content or face validity of the questionnaire, Johnson and Christensen (2008, p. 152) noted that it is "based on a judgment of the degree to which the items, tasks, or questions on a test adequately represent the construct domain of interest". Bryman (2008) explained that peer review is required as evidence of validity of an instrument's content and style.

To ensure content validity of the student questionnaire, five Saudi Arabian research students studying in Melbourne and fluent English speakers were asked to read and comment on the questionnaire. Based on their comments, some statements were modified. In addition, in Saudi Arabia, three graduates were asked to test the questionnaire in Arabic. They provided suggestions to improve the clarity of certain items.

The reliability of the questionnaire can be tested for internal consistency with scales of usefulness, learning, interactions, and obstacles (Johnson & Christensen, 2008). Available on statistical software, Cronbach's alpha is a measure of internal consistency that items relate to and measure a given element; a high value of alpha (>0.7) is accepted for internal reliability (Bryman, 2008; Pallant, 2007). In this study, Cronbach's alpha was used to test the internal consistency of the four scales with good reliability: alpha coefficient = 0.83 for the usefulness scale; alpha= 0.81 for the learning scale; alpha=0.88 for interaction scale; and alpha=0.70 for the obstacles scale. The results show that the student questionnaire in this study is reliable.

4.3.3 Questionnaire Administration

The UQU instructors were consulted on the availability of students to schedule questionnaire distribution to the students during the last two weeks of the 2009 semester. The optimum time was deemed to be the end of a semester as it maximised the time available for students to use their instructors' websites. Thirteen classes were visited with 504 students from the nine selected instructors' classes, with appropriate approvals and consent forms. Instructors offered 15 to 20 minutes of their class time for the questionnaire distribution and collection.

Whilst the intention was to personally hand out the questionnaires to maximise the response rate, Saudi legal restrictions do not allow contact between genders. Thus the researcher delivered the surveys to the male students and his wife handed them to the female classes. During the distribution of questionnaires to the female participants,

the researcher was in the teleconferencing studio with the instructor for any questions. The distribution schedule is shown in Table 4.2.

Table 4.2
Distribution of Class, Student and Gender Samples, by Instructor

Instructor's Code	Class #	Male students	Female students	Total
T01 (SQ)	2	37	35	62
T02 (MZ)	1	--	52	52
T03 (KM)	1	--	47	47
T04 (SQ)	2	55	--	55
T05 (AA)	1	52	--	52
T06 (OH)	2	63	--	63
T07 (TS)	1	48	---	48
T08 (LK)	2	34	38	72
T09 (AH)	1	--	43	43
Total	13	289	215	504

Questionnaires returned from this sampling procedure yielded 344 respondents; a 68 per cent response rate, with 55 per cent male participants and 45 per cent female. The respondents represented eight colleges, Applied Medical Science, Applied Sciences, Computer, Education, Engineering and Islamic Architecture, Shari`ah and Islamic Studies, Social Sciences, and Teacher Preparation. Analysis of the respondents' characteristics is discussed in Chapter 5. The successful response rate may be attributed to the following factors:

- that the questionnaire was valued by the students as they seek greater integration of the online learning environment with physical learning at their university
- the relevance and consistency of the questions
- support by the faculty participants for students to contribute to the study.

4.3.4 Summary

The quantitative findings in this study contributed to the mixed methods triangulated research design. A questionnaire was constructed and distributed to collect data on a wide range of UQU undergraduates' views of their instructors' websites and the value of the websites to the students' classroom learning experiences. The

questionnaires were also used for demographic information and computer and internet experience.

The questionnaires were constructed in five sections, the first two of which captured the demographic information and students' self-rating with computer and internet experience. The third section sought respondents' responses to the overall usefulness of faculty websites, the influence of the website on their learning experiences, and on student and instructor communications. Next, participants were given the opportunity to express an opinion on the advantages and disadvantages of instructor website usage, and their recommendations for website development. This was followed by students' views on the adequacy of UQU's ICT infrastructure and support for online learning.

After approvals, validation and reliability tests had determined the appropriate standards for the survey instrument; the questionnaires were distributed to 504 students in 13 classes of the nine instructors. The response rate was 68 per cent, slightly in favour of males with 55 per cent return and females' 45 per cent, which was considered satisfactory.

4.4 Qualitative Data Collection

Interviews are recognised as a primary method of qualitative data collection, however, they can be employed in combination with quantitative data to confirm or explain the findings (Creswell, 2009; Teddlie & Tashakkori, 2009; Wilkinson & Birmingham, 2003). Interviewing is also appropriate in gathering perspectives and experiences from a small number of participants (Brenner, 2006). In the majority of interviews, researchers ask study participants open-ended questions regarding the topic and then record their answers (Johnson & Christensen, 2008; Creswell, 2009). Creswell (2008, p. 226) stated that interviews "provide useful information when you cannot directly observe participants, and they permit participants to describe detailed personal information". The interviews were a means also to ensure the consistency of quantitative findings by mixed method triangulation. In this study, interviews were selected as the means for obtaining experiences and perspectives of instructors at UQU towards blended learning environment.

4.4.1 Interview Design and Content

In this study, individual interviews were an appropriate means to gather data from the faculty participants. The qualitative data collection selected for this study was by semi-structured interviews conducted face-to-face. According to Creswell (2008), interviews can be conducted face-to-face, telephone, email, or in a focus group. Creswell explained that face-to-face interviews were widely used in research, but they were both time consuming and expensive. In these interviews, the researcher posed open-ended questions to the participant that corresponded to data required to answer the research questions, and there was sufficient flexibility for the interviewee to shape the flow of information (Wilkinson & Birmingham, 2003). Minichiello, Aroni, and Hays (2008, p. 52) described the advantage of semi-structured interviews: "the data are somewhat more systematic and comprehensive than in the informal conversational interview, while the tone of the interview still remains fairly conversational and informal".

The open-ended question broadly followed the research sub-questions. The interview questions included

- reasons for supplementing classroom teaching with a website
- purpose of website
- integration of website material into the curriculum
- changes in teaching and learning practices since the website was established
- benefits for student learning, communication, and class interaction
- student motivation to utilise and contribute to the website
- issues from using the website
- obstacles to online learning in Saudi Arabia.

4.4.2 Interview Procedures

A formal invitation was sent to each of the nine faculty members early in 2009 (Appendix F). The letter included information on the research, the researcher, and noted that RMIT University Ethics Committee had approved the approach. There was an estimate of one half hour for an individual interview, and the letter contained an assurance of confidentiality, and appreciation for the participants' time and contribution. A schedule with times and places for interviews was subsequently

arranged with each person during February and March 2009. The participants also received information on the type of questions to expect at the interview. Two instructors preferred to respond to the questions by email, which was acceptable as an individual collection of pertinent data (Brenner, 2006). Unfortunately, with several reminders, they did not respond. There were therefore seven face-to-face interviews.

At the interviews, which were conducted either at the UQU faculty offices or at a convenient place externally, the instructor was asked to sign a consent form that ensured confidentiality, and granted the researcher permission to digitally audio record the interview. As it was a semi-structured interview, there was flexibility in the sequence of questions, and instructors were given the opportunity to elaborate on points they wished to make. A copy of the interview digital file was given to the interviewee at the end of the interview, as part of the validity procedures (Brenner, 2006). The interviews were coded and transcribed by the researcher. They were then translated by a certified Arabic-English translator, attached at appendix K.

4.4.3 Interview Data Validation

Unlike quantitative data methods, where validation is based on statistical standards, the validity of interview data relies on the procedures for gathering data and the design of the collection instrument (Brenner, 2006; Minichiello et al. 2008). There are number of procedures used to validate qualitative data, such as triangulation, member checking, and peer debriefing (Brenner, 2006; Creswell, 2008). In this study, validation of the raw data was determined through member checking and peer debriefing.

The validation process comprised two parts. First, the researcher sent each instructor participant a copy of both the Arabic interview transcript and the English translation. Moreover, the interviewees had their copies of the digital recorded interviews. Review of the transcription and translation accorded the data member validation (Creswell, 2008). Next, the researcher and two Saudi Arabian postgraduate students studying at Australian universities fluent in English reviewed the interview data analysis. They were asked to examine the interviews transcription as well as the extraction of findings to validate the translation, and the analysis; that is, peer debriefing (Brenner, 2006).

4.4.4 Summary

Qualitative data collection selected for this study comprised semi-structured interviews with the faculty participants using open-ended questions to answer the research questions. Seven instructors of the nine instructor participants have been interviewed. These interviews were conducted under research conditions, and in the Arabic language, and data and translations were validated by interviewee and peer review.

4.5 Data Analysis Procedures

In research, the data analysis stage is considered the most meaningful, in which selected analytical procedures convert the raw data into meaningful information to answer the research questions (Johnson & Christensen, 2008; Creswell, 2009). As this study involved both quantitative and qualitative data, the analytical procedures were selected to be consistent with the nature of the data. A thematic analysis approach propounded by Minichiello et al. (2008) was used for the quantitative data, whilst descriptive statistics such as frequency, percentage, means, and standard deviation were used in analysing the quantitative data. The use of specialised software was recommended by Bryman (2008) to facilitate analysis, so that for this research software analytical programs included Statistical Package for Social Sciences (SPSS), version 17; QRS NVivo, version 8; and Microsoft Excel. The following sections discuss the data analysis procedures used for the quantitative and qualitative data.

4.5.1 Quantitative Data Analysis

Following the coding of the 344 returned questionnaires, the data were entered into software package SPSS, version 17. Each questionnaire form was given an ID code from 001 through to 344. The questionnaire sections and statements were also coded as data requirements for the software. The data were then analysed for frequencies and percentages to describe the distributions of the category variables, demographics, and computer and internet experience (Pallant, 2007). Mean, or average, was used to measure the central tendency of all continuous variables; and students' perceptions of the four scales (usefulness, learning, interactions, and obstacles). Cross-tabulation, or comparison of two or more variables, was used for scale data according to gender. In

addition, an independent sample *t*-test procedure was used in comparing the mean scores of male and female students.

Prior to any parametric techniques such as *t*-test and analysis of variance, assumptions should be addressed (Pallant, 2007). For the independent sample *t*-test, the assumptions are independence of measurement, normality of population distribution, and homogeneity of variance. In this study, statistical analyses were conducted to ensure that assumptions were legitimate. First, the independence of the data for this study was generally determined by the structure of the data collection procedures (Section 4.4). Since the participants in this study were assigned individually, their responses could be assumed to be independent. Second, the normality of population distribution assumption in this study was resolved by the sample size, which was more than 200 (Field, 2009; Pallant, 2007). In addition, Pallant (2007, p. 204) states that 'In a lot of research (particularly in the social sciences), scores on the dependent variable are not normally distributed'. Third, the assumption of homogeneity of variance means that there is an equal variance of scores for each of the groups (Pallant, 2007). To test this assumption, Levene's test, part of the *t*-test, was conducted (Field, 2009; Pallant, 2007). The results from Levene's test were not significant (>.05) in all four scales; usefulness, learning, interactions, and obstacles (see Table 4.3). The results confirmed that the variance is equal across male and female groups, thus all assumptions for the independent *t*-test were met.

Table 4.3
Levene's Test for Equality of Variances

Scale	**Levene's Test for Equality of Variances**	
	F	**Sig.**
Useful	.073	.787
Learning	3.634	.057
Interactions	3.830	.051
Obstacles	.041	.839

4.5.2 Qualitative Data Analysis

In qualitative research, data analysis is an ongoing process which occurs while the data are collected. Minichiello et al. (2008, p. 258) defined data analysis as a "process of systematically arranging and presenting information in order to search for

ideas". However, qualitative data analysis is considered expensive and time consuming (Bryman & Burgess, 1994; Burns, 2000). The qualitative data for this study was collected through semi-structured interviews with UQU instructors who participated in this study, and also from open-ended questions on the student questionnaires. In both methods, the data were collected under predetermined questions or themes. Therefore, thematic analysis procedures were a suitable technique to analyse the data (Bryman & Burgess, 1994; Burns, 2000; Minichiello et al., 2008). According to Minichiello et al., thematic analysis is employed where the researcher can identify themes emerging from analysis of the interview transcripts.

In thematic analysis, coding is considered a significant procedure of the analysis (Bryman & Burgess, 1994; Burns, 2000; Minichiello et al., 2008). Bryman and Burgess (1994) explain that coding is the process of sorting and categorising data through a systematic examination of the transcripts to gain meaningful categories (Burns, 2000; Minichiello et al., 2008).

To initiate analysis of the interviews, four preliminary coding themes were used; objectives of instructor websites, student and instructor usage of websites, advantages of website usage, and issues regarding adoption of websites. These themes were formed from the raw data audio tapes after listening to the interviews several times and were based on the research sub-questions. To extrapolate from these themes, data were open-coded from the transcripts, whereby each line of the transcript was searched for meaning (Bryman & Burgess, 1994). This process produced tables that consist of several categories and sub-categories under each theme, illustrated by examples provided from the interviews transcripts. Later, the sub-categories were grouped and summarised, making connections between the major category and its sub-categories by applying axial coding, that is, the disaggregation of core themes (Bryman & Burgess, 1994). The results from this process are shown in Table 4.4 below. The discussion on the results is in Chapter 6.

Table 4.4
Qualitative Analysis Themes

Theme	Category	Sub-category
Website purpose	Media to assist curriculum delivery	Timely delivery, enriched presentation, accessibility
	Enhances learning	Comprehensive curriculum content, offsite consultation, course support
	Improves communications	Offsite communications, topic discussion, administration
	University policy	University policy to move online, facilitates mobile communications and offsite student engagement
Website users	Instructors	Post lecture notes, supplementary course material, and course administration; facilitates discussion
	Students	Access course materials, submit assignments, group discussion
Website benefits	Curriculum delivery	Effective use of lecture time, conduct tests online, course content support
	Learning	Access course materials, enriched information sources, thus enhanced students' learning outcomes
	Communication	Valuable mobile connection between faculty and students, group discussion, flexibility for culture-based issues
Website issues	Instructors	Computer literacy, low motivation, online copyright, concerns, nature of discipline
	Students	Computer literacy and access to internet at home, low motivation for online learning
	University	Infrastructure quality and resources, insufficient incentive from government

4.6 Chapter Summary

This methodology chapter explains the research design and methods that have been used in this study to explore the views and experiences of faculty and students at UQU towards blended learning environment. A triangulated mixed methods design was

selected for this study, where quantitative and qualitative data are collected to determine convergence of perspective and corroboration of results from the different perspectives of faculty and students. Appropriate research approvals were obtained from RMIT University and UQU.

To determine sample populations of users of UQU instructors' websites, nine optimum faculty websites accessible from the UQU portal were identified through a checklist procedure. This also identified the student classes of nine faculty members for the study's quantitative data. There were 504 undergraduates associated with these instructors, for which 344 valid questionnaires were completed and received; a satisfactory 64 per cent response rate. Seven faculty members were willing to undertake interviews to collect qualitative data.

Qualitative data collection selected for this study comprised semi-structured interviews with the faculty participants using open-ended questions to answer the research questions. The quantitative questionnaire was constructed from the literature, with the research questions based on thematic concepts of blended learning; include the benefits of blended learning design, the impact on learning experiences, the impact on communications and interactions, and the major challenges. The questionnaires were also used to establish students' demographic information and computer and internet experience, and give participants the opportunity to express their opinion on the advantages and disadvantages of instructor website usage, and any recommendations for website development. The research process, including survey questions, data collection, translations, and transcripts, was subjected to validity and reliability testing.

The quantitative data were collected from classes and the questionnaires numbered, coded, and subjected to validity analysis through statistical software. The qualitative data from the interviews, which were audio recorded, transcribed and translated, were analysed for themes relating to website objectives, usage, advantages and issues. To extrapolate from these themes, data were coded from the transcripts, sub-categorised and cross-tabulated (Bryman & Burgess, 1994). All data indicators were found to be valid, and within mixed method analysis parameters. The next Chapters consider first, the results and findings from the quantitative data, Chapter 5, and then the qualitative data, Chapter 6.

Chapter 5 Quantitative Data Analysis

This chapter commences the analysis phase of the study, which concerns instructors and undergraduates using a blended learning environment at Umm Al-Qura University (UQU). Blended learning environment in this study involves the use of individual instructor websites, which have been used to deliver courses contents and activities online in a blended design. The research is supported by the following sub-questions which underpinned the student participants' questionnaire: the value students place on instructors' websites as a resource, as a communication aid, and as a learning aid. Learning, teaching, and student/university staff interactions are explored in this study, thus the views of both students and lecturers were obtained. This chapter presents the statistical analysis of the student participants' views regarding the use of instructors' websites.

The chapter is divided into five sections, based on the plan of the questionnaire. The first section describes the student participants' demographics, gender, travel distance to UQU, undergraduate status, faculty, and study load (number of study hours per week). The second section explores the students' experiences regarding computer and internet use (ICT), and describes their current competency levels for selected computer and internet applications, including students' access to the instructors' websites. The third section reports on the usefulness of the websites for learning and for interaction with instructors and peers, and explores potential obstacles that may prevent participants from using such websites. The fourth section compares gender responses on the students' perceptions of these factors, and the final section reviews the respondents' observations regarding the operational aspects of a blended learning environment.

5.1 Data Analysis

In the first semester 2009, as described in Chapter 4, a questionnaire was distributed to all UQU undergraduates who had access to an instructor's website as a learning resource. Thirteen classes were visited by the researcher who distributed 504 hard copies of the questionnaire. Of these, 344 were returned and accepted for analysis, resulting in a response rate of over 68 per cent.

The data were collated and coded into a database associated with SPSS for Windows (Version 17), and were then analysed for descriptive statistics such as frequency, percentage, means, standard deviation, and differences. The first two sections, student demographics, and ICT access and competencies, used frequency and percentages for analysis. The main section, perceptions of instructor websites, based on the research sub-questions, used a 4-point Likert scale. The variable range was calculated using the formula (x = (n-1)/n), where *n* is the number of points in the scale and *x* is the range of statement, producing x = 0.75 range for each category (Birisci, Metin, & Karakas, 2009; Topkaya, 2010). This was recalculated for Section 5.4.2, instructor's website content, Table 5.10, to reflect omitted items; then resumed for the remainder of this part of the analysis. For gender differences, the last analysis of the quantitative data, comparison of the split sample was undertaken using cross-tabulation, and an independent sample *t*-test was carried out on each result to examine the differences.

5.2 Students' Demographics

The following sections present details on participants' characteristics. These include gender, the distances they have to travel to the university and their online skills' levels, which may influence their response to website access. Further, the faculty, undergraduate stage, and study loads are noted.

5.2.1 Gender

There was an imbalance of responses between genders, as shown in Table 5.1 below.

Table 5.1
Gender of Student Respondents

Gender	Frequency	Percentage
Male	190	55.2
Female	154	44.8
Total	344	100

Table 5.1 shows that there were 190 males and 154 females in the sample, that is, a total of 344 respondents. This indicates that the majority of participants in this study, by over 10 per cent, were male.

5.2.2 Travel Times to UQU Campus

The amount of time students used to reach the university is depicted in Table 5.2.

Table 5.2
Travel Times to UQU Campus

Travel Times (Minutes)	Frequency	Percentage
<15	82	23.8
16-30	191	55.6
31-45	49	14.2
>45	22	6.4
Total	344	100

Table 5.2 shows that nearly 80 per cent of the respondents were located 30 minutes or less from the university, with only 6 per cent who lived more than 45 minutes away. Thus the greater majority of participants lived within a reasonable commuting distance from the university.

5.2.3 Undergraduate Year

Participants were selected from each undergraduate year level. All students in the Kingdom undertake a four-year undergraduate course, the first year devoted to transitional change from secondary school to university level. The initial year comprises a general education for the discipline. This is described in Table 5.3.

Table 5.3
Undergraduate Year

Year	Frequency	Percentage
First	43	12.5
Second	82	23.8
Third	49	14.2
Fourth	170	49.5
Total	344	100

Table 5.3 presents the distribution of the sample among the course levels. Almost half of respondents (49%) were in their last, fourth year of study, with the least numbers from the first year.

5.2.4 Faculty Affiliation

Whilst most of student respondents were in their last year, their faculty affiliation was quite widespread, as illustrated in Table 5.4.

Table 5.4
Faculty Affiliation

Faculty	Frequency	Percentage
Social Sciences	60	17.5
Education	54	15.7
Engineering and Islamic Architecture	46	13.4
Applied Medical Science	40	11.6
Teaching	40	11.6
Shari'ah and Islamic Studies	39	11.3
Computer Technology	34	9.9
Applied Sciences	31	9.0
Total	344	100

Table 5.4 shows that the respondents were from eight different faculties, or colleges. The highest percentage of respondents, 17 per cent, attended the College of Social Sciences followed by the College of Education at 16 per cent. The College of Teaching representation was somewhat less, at 12 per cent, equal with Applied Medical Science. The College of Computer Technology at 10 per cent and the College of Applied Science, at 9 per cent, were least represented in the study.

5.2.5 Study Load

The study load is defined as the number of hours that a student is required to attend classes; personal study, external activities and assignments are not included. Table 5.5 illustrates the study load of respondents by calculating the credit hours registered per week.

Table 5.5
Study Load

Attendances Hours per Week	Frequency*	Percentage
<10	25	7.3
11 – 15	80	23.3
16 – 20	166	48.4
21 – 25	72	21.0
Total	343	100

* One respondent did not report

As shown in Table 5.5, the majority of respondents reported that they had attended16 hours or more of classes per week, this accounted for some 70 per cent of the sample. Less than 7 per cent attended less than ten hours per week.

5.2.6. Summary of Student Demographics

In this section, a profile of the student sample emerges. There is a slight bias to male students, noting that the selection of participants was limited to those accessing instructor websites on the UQU portal, which were mainly for male instructors. Further, the researcher could not deliver questionnaires to female students; although he was available at the time and place they were delivered to answer questions. Notably, some 80 per cent of the student participants lived within a half-hour travel time of the university; thus one in five were forced to travel more than 30 minutes for classes.

Next, the last year of coursework before graduation was over-represented in the sample, with half the respondents at that stage. This may affect the findings, as the pressure of studying for final examinations may lead to a greater reliance on online material and communications. The individual faculties were generally well-represented, although some 44 per cent were represented by social sciences and education-based faculties. Last, and as expected, the study load reflected a predominance of the sample participants for full-time study.

5.3 ICT Access and Competency

This section of the questionnaire explored participants' familiarity with ICT and their access to the internet services at the university and at home. Further, the frequent access to the internet and instructor websites is explored.

5.3.1 Internet Access

Respondents reported on their access to the internet in Table 5.6. To maintain brevity for the questionnaire, type of access was not requested. This may, however, have some effect on the students' responses, due to possible differences in speed of connection and thus ability to transmit material.

Table 5.6
Internet Access

Location	Frequency*	Percentage
Home	276	80.7
University	25	7.3
Other	37	10.8
No access	4	1.2
Total	342	100

* Two respondents did not report

The majority of participants (>80%) reported that they have access to the internet at home, however, only 7 per cent were able to access the internet at the university. Twelve per cent of respondents therefore reported irregular or no access to the internet.

5.3.2 ICT Competencies

Training on computer-based equipment is considered desirable, as users have varying levels of competency for example, keyboard work, and the ability to access and load programs from the internet. Further, ICT equipment and software change regularly, and skills require frequent updating. The response to the question, "Have you attended a computer training program at UQU?" showed that 312 (90.7%) respondents did not attend any computer training, whereas 32 (9.3%) answered in the affirmative. This indicates that there is a lack of focus on computer training at the university.

Respondents were then asked to rate their level of ICT skills. This question used a five-point Likert scale, 1, 'none', 2 'inadequate', 3 'adequate', 4 'good' 5 'excellent'. Participants were advised of a standard for each skills rating on the scale so that they could answer with some degree of uniformity. The results can be seen in Table 5.7. The skills are ranked from the lowest to the highest perceived level of skill, using the sample mean for each. Highest results for each competency are displayed in bold.

Table 5.7
ICT Competencies

Competency	Skills Levels											
	None		Inadequate		Adequate		Good		Excellent		Totals**	
	F*	*%*	F	*%*	F	*%*	F	*%*	F	*%*	F	%
Internet search	9	*2.6*	21	*6.1*	97	*28.3*	105	*30.6*	111	***32.4***	343	100
Microsoft Office	23	*6.7*	29	*8.5*	95	*27.8*	82	*24.0*	113	***33.0***	342	100
E-mail	53	*15.5*	47	*13.7*	82	*23.9*	67	*19.5*	94	***27.4***	343	100
Imaging	67	*19.5*	70	*20.4*	87	***25.4***	58	*16.9*	61	*17.8*	343	100
Internet browsers	69	*20.2*	73	*21.3*	85	***24.9***	55	*16.1*	60	*17.5*	342	100
Threaded discussion	71	*20.7*	70	*20.4*	89	***26.0***	58	*16.9*	55	*16.0*	343	100
Creating web pages	170	***49.6***	94	*27.4*	49	*14.3*	17	*4.9*	13	*3.8*	343	100

* Frequency; ** Variable responses

In Table 5.7, two-thirds of respondents reported good or excellent skills in using internet search engines such as Google and Yahoo, however, one in 12 respondents reported inadequate or no skills. This compares with one in eight respondents who had irregular or no access to a computer (see Section 5.3.1 above). The Table shows that the greater majority of students were skilful in navigating the web and using a search engine. On Microsoft Office applications, such as Microsoft Word and PowerPoint, over half of respondents (57%) reported good skills in using these applications, whereas some 15 per cent reported little or no skills in basic usage. Table 5.7 shows that respondents' highest competencies were searching the internet and Microsoft Office applications.

Whilst email is becoming a common communication medium, Table 5.7 shows nearly one third of the respondents as having poor emailing skills. This unexpected result may have been compromised by a statement in the questionnaire on email attachments. The next questions related to imaging devices and software, internet browsers, and threaded discussion or forums, and the reported competencies of these were almost equally distributed. Some 40 per cent reported poor skills levels with these actions, whilst a third thought they had good or excellent competencies with these applications. However, web page authorship skills were described by three-quarters of the sample as less than adequate.

5.3.3 Instructor Website Access

Similar to the ICT training question, participants were asked whether they attended a course regarding online delivery of the curricula, 129 (37.5%) had instruction, whilst the others had not. Table 5.8 explores participants' internet access compared with access to the instructor's website.

Table 5.8
Access to the Internet and Instructors' Websites

Internet Access	Frequency	Percentage	Website Access	Frequency*	Percentage
Daily	166	48.3	Daily	33	9.6
Twice per week	84	24.4	Weekly	157	45.8
Once per week	63	18.3	Monthly	63	18.4
Never access	31	9.0	Never access	90	26.2
Total	344	100	Total	343	100

* One respondent did not report.

Table 5.8 shows that, whilst half the participants are online every day (compared to two-thirds professing good internet skills), less than 10 per cent check their instructors' websites each day. Nine per cent reported that they never accessed the internet and more than one quarter did not log in to their instructors' websites. Generally, 90 per cent of students are online at least once per week, and just over half of the sample (55%) accesses their instructors' websites once per week.

5.3.4 Summary of ICT Access and Competencies

This sub-section explores student participants' internet access, training experiences, and their self-assessment of ICT skills. First, nearly one in every five students did not have the internet at home, relying on university or other forms of access. This result is of concern when ICT and the internet are the preferred media for social and economic communication and task completion. Further, ICT training was not a focus of the university's curricula, although technological change and the introduction of new applications would be expected to feature user training. User training may be addressed by increment and employ ICT applications in learning process. However, this approach lacks an overview and the user's ability to compare applications for selection for different projects or processes students may need.

Good or excellent skills were reported for basic computer activities such as producing material for reports and searching the internet. However, there were mixed responses to all other competencies, including emailing. The exception was web page authoring, where the greater majority of respondents reported inadequate or no skills levels. This result confirms that just one-third of respondents were confident in their ICT skills. ICT training is an obvious response to satisfy employer concerns with entry-level recruitment.

Comparison of students' access to the internet and instructors' websites is revealing, especially as over one-third attended training on using the curriculum resource. The difference between the daily access to the internet and the access to the instructors' websites is understandable, as students attend weekly subject classes. However, it is of concern that over 44 per cent of students access their instructors' websites rarely, or never.

5.4 Perceptions of Instructor Websites

This section moves the analysis forward to the research questions regarding the students' perceptions towards blended learning environments at UQU. The survey thus included questions relating to students' perceptions of instructors' websites as a resource, as a communication aid, and as a learning aid. In this section, means were calculated to measure the central tendency of the data on the instructors' websites, usefulness, influence on learning, and on interactions, and obstacles that prevent

students from using the websites. A 4-point Likert scale was applied, in which 1 represented *strongly disagree*; 2, *disagree*; 3, *agree*; and 4, *strongly agree*. The statement, or variable, range was calculated using the formula (x = (n-1)/n), producing x = 0.75 range for each category. This formula was used by Birisci et al. (2009), and Topkaya (2010), for similar purposes.

Table 5.9
Calculated Range of Variable Scale

Variable scale	Lower range	Higher range
Strongly disagree	1.00	1.75
Disagree	1.76	2.50
Agree	2.51	3.25
Strongly agree	3.26	4.00

5.4.1 Usefulness

The usefulness question concerned aspects of the websites when used as a supplementary resource within the curriculum. In this question, data were collected on the websites environment, and the perception of the student regarding accessibility to a range of variables, improved skills and improved learning processes. These are revealed in Table 5.10, showing the mean, standard deviation and ranking for each variable.

Table 5.10
Usefulness of Instructor Websites

Variable	N	Mean	Std. Dev.	Rank
Improved information access	344	3.46	.678	1
Improved access to instructor	344	3.29	.781	2
Allows remote access to lecture material	344	3.26	.824	3
Improves internet competency	342	3.19	.728	4
Improves course satisfaction	344	3.18	.764	5
Increases resources access	344	3.12	.725	6
Increases study flexibility	342	3.07	.753	7
Cost effective	344	3.02	.975	8
Saves travel time	344	2.88	.962	9
Increases my productivity in class	344	2.78	.727	10
Result		3.125	0.791	

The mean of the variables in Table 5.10 range from 2.78 to 3.46, with the resulting mean of 3.125 and a standard deviation 0.791. According to the variable scale (agree = 2.51-3.25), student respondents found the websites useful for their coursework. Accessibility of information such as timetables and course material had the highest mean scores (m. 3.46, sd. 0.678), followed by the access to the instructor at anytime (m. 3.29, sd. 0.781) and access to lecture material on the website (m. 3.26, sd. 0.824). These recorded *strongly agree*. Perceptions of increased student productivity in class, and saving time and money on unnecessary travel, displayed the lowest means (m. 2.78, sd. 0.727; and m. 2.88, sd. 0.962, respectively), although these were also *agreed*.

5.4.2 Website Content

The students' survey then had a series of questions on the contents of instructor websites. In this analysis, the variables relate to student and course administrative matters, direct and indirect subject material, and ancillary discussion forums. There were four parts to this Likert scale, with 0 for *not available*, and 1 to 3 representing the low to high range of utility. The *not available* selection was removed to better reflect students' responses to the remaining variables. Therefore, the mean was recalculated from 1 to 1.66 *not useful*, from 1.67 to 2.33 *useful*, and from 2.34 to 3 *highly useful*. The results are displayed in Table 5.11.

Table 5.11
Instructor Website Content

Variable	N*	Response						Mean	St. Dev.	Rank
		Not Useful		Useful		Highly Useful				
		F	*%*	F	*%*	F	*%*			
Lecture material	329	16	*4.9*	63	*19.1*	250	*76.0*	2.71	.551	1
Administration	334	26	*7.8*	113	*33.8*	195	*58.4*	2.51	.638	2
Announcements	319	39	*12.2*	96	*30.1*	184	*57.7*	2.45	.703	3
Exercises	304	32	*10.5*	107	*35.2*	165	*54.3*	2.44	.677	4
Instructor information	340	47	*13.8*	133	*39.1*	160	*47.1*	2.33	.707	5
Emails	319	56	*17.6*	105	*32.9*	158	*49.5*	2.32	.755	6
Library and resources	315	58	*18.4*	146	*46.4*	111	*35.2*	2.17	.714	7
Discussion forum	278	57	*20.5*	125	*45.0*	96	*34.5*	2.14	.730	8
Website references	290	59	*20.3*	142	*49.0*	89	*30.7*	2.10	.708	9

* Variable responses, thus percentage differences with *F*

Results in Table 5.11 show that responses to the questions ranged from 2.10 to 2.71, on average, all content material were considered useful or better. Lecture transcriptions and lecture notes had the highest mean at m. 2.71, sd. 0.551; followed by administration and course information, m. 2.51, sd. 0.638; and announcements and exercises with m. 2.45, sd. 0.703; and m. 2.44, sd. 0.677; respectively. Lesser satisfaction was reported with website references and forums, at m. 2.10, sd. 0.971 and m. 2.14, sd. 1.064 respectively.

5.4.3 Learning Experiences

Respondents considered instructor websites' effects on their learning experiences. These questions included the importance of the websites to a more flexible learning environment and are presented in Table 5.12. The initial scale calculations were strongly disagree 1.0-1.75; disagree 1.76-2.5; agree 2.51-3.25; strongly agree 3.26-4.0.

Table 5.12
Learning Experience

Variable	N	Mean	Std. Dev.	Rank
Flexible access to learning	343	3.15	.697	1
Additional resource method	344	3.08	.802	2
Facilitates revision	344	3.05	.727	3
Improves learning experience	344	3.03	.797	4
Assists achievement	343	3.02	.675	5
Facilitates instructor engagement	344	2.87	.715	6
Facilitates learning activities	344	2.84	.784	7
Result		3.005	.742	

As shown in Table 5.12, statements ranged from 2.84 to 3.15, that is, *agree*, with the result of m. 3.005, sd. 0.742. This indicates that students in this study strongly agreed that instructor websites had an influence on their learning experiences. The highest interest was the flexibility of access to material external to lectures (m. 3.15, sd. 0.697), followed by the enhancement offered by an additional resource method (m. 3.08, sd. 0.802). Facilitating revision of the course content was also of importance (m. 3.05, sd. 0.727), as was an improved learning experience (m. 3.03, sd. 0.797), and achievement (m. 3.02, sd. 0.675). Although still highly regarded, engagement in the learning activities had the lowest mean (m. 2.84, sd. 0.784), with instructor contact slightly higher (m. 2.87, sd. 0.715).

5.4.4 Interaction Quality

The importance of good communication channels between students and instructors was noted in the learning experience results above. The quality of that interaction is explored in this section. Whilst interaction at lectures and submission feedback underpin these communications, it is the mentoring and leadership on an individual basis that provides a quality experience for students. The questions relating to this relationship are shown in Table 5.13.

Table 5.13
Quality of Interactions

Variable	N*	Mean	Std. Dev.	Rank
Improved communication environment	343	3.26	.776	1
Enhanced interaction experience	343	3.25	.707	2
Flexible instructor communications	344	3.11	.708	3
Improved feedback	341	3.03	.721	4
Encourages collaboration and sharing	344	2.96	.749	5
Enhanced peer interaction	344	2.91	.778	6
Increased motivation to contribute	344	2.81	.760	7
Improved academic discussion	343	2.80	.781	8
Opportunity to contribute to class resources	343	2.78	.806	9
Result		2.99	.754	

Table 5.13 reveals the students' response to the influence of instructor websites on communications and interactions. Again, the nine variables rated in the *agree* and *strongly agree* categories, between means of 2.78 and 3.26, with the result of 2.99, which was above the average mean of 2.5, consistent with the response to learning experience. The results indicated that students in this study strongly agreed that their instructors' websites influenced their interactions. An improved communication environment and enhanced interactions between students and instructors were the highest ratings with m. 3.26, sd. 0.776; and m. 3.25, sd. 0.707; respectively. This was followed by the flexibility of student and instructor communications, with m. 3.11, sd. 0.708. Remaining highly regarded, the respondents reported the contribution to resources as the lowest influence of their instructors' websites with m. 2.78, sd. 0.806, with slightly better responses for improved academic discussions (m. 2.80, sd. 0.781), and motivation to participate in class activities (m. 2.81, sd. 0.760). Overall, results in Table 5.12 demonstrate that the greater use of the website was on student-instructor interaction; whilst student-content, whilst still highly regarded, was the least useful of the variables.

5.4.5 Obstacles to Access

The preceding dimensions of usefulness of instructor websites explored the participants' views on the concept of instructor websites, the content, learning

environment and quality of the interactions. In this section, issues relating to access of the website for the students are determined. Table 5.14 provides a statistical description of the obstacles or factors that may prevent students at UQU from utilising online learning.

Table 5.14
Issues Impeding Access

Variable	N	Mean	Std. Dev.	Rank
Insufficient ICT infrastructure and resources	343	2.76	.917	1
Inadequate encouragement to utilise website	342	2.75	.975	2
Lack of technical support	342	2.73	.899	3
Inadequate computer literacy	342	2.45	.927	4
Irrelevant for course completion	343	2.08	.861	5
Access unnecessary	343	1.95	.919	6
No difference between forms of information	342	1.88	.853	7
Result		2.37	.90	

Table 5.14 identifies three major obstacles to access instructor websites; insufficient ICT infrastructure and resources at university campuses (m. 2.76, sd. 0.917), inadequate encouragement from their instructors to make use of the websites (m. 2.75, sd. 0.975), and lack of technical support (m. 2.73, sd. 0.899). In addition, the students reported other impediments under the open ended question, which are discussed in the qualitative data section. However, inadequate computer skills, highlighted in Section 5.3.2, were an impediment inasmuch as nearly one of every five students did not have the internet at home, relying on university or other forms of access. The remaining three variables did not rate as highly, although they were of significance to the participants (that is, a mean over 1.67).

5.4.6 Summary of Perceptions of Websites

The students' evaluation of their instructors' websites followed their self-evaluation of their ICT skills. This section considered students' perceptions of instructors' websites as a resource, as a communication aid, and as a learning aid.

The first of the participants' views concerned the usefulness of instructor websites as a supplementary resource within the curriculum. The students found the websites very useful, particularly as a source of course information and timetables,

access to their instructors, and to lecture material. The second group of questions, website content, was also popular; all content material was considered useful or better. Again, lecture transcriptions and lecture notes were useful, followed by administration, announcements and exercises. The participants were well disposed toward the websites as a learning experience, and flexibility of access to course material and the benefit of an additional communication and resource pathway were favoured. They also considered useful revision of the course content and an improved learning environment and contribution to their personal achievements. The third dimension, the quality of the interactions, resulted in the students strongly agreeing that the websites were an improved communication environment. They felt that the platforms enhanced interactions between students and instructors, that they enhanced flexibility in student and instructor communications. However, the participants reported lesser impact in relation to the opportunity to contribute to course materials.

The final dimension, obstacles to access of the instructors' websites, reflected participants' concerns regarding the efficacy of ICT infrastructure and resources at their university, and further to the resource issues, the students lacked technical support. They also reported that instructors were inadequate in their encouragement for their students to use the websites. As a factor, inadequate computer skills formed a significant response, especially as one in five students did not have regular access to computers and thus had little opportunity for website familiarisation.

5.5 Comparison of Gender Differences

The previous sections considered ICT access for the study participants at UQU and their views on the website environment and learning experiences for their lecturers. As articulated in Chapter 2 (Section 2.1.5), in Saudi Arabia interactions are restricted between men and women who are unrelated or unmarried. Male and female students attend different venues at the university, thus it is of interest whether there is a significant difference between their perceptions. For this section, the same dimensions are investigated, students' overview of the websites, their learning experience, communications and interactions, and any obstacles they encounter in accessing the website material. A comparison of the split sample was conducted using cross-tabulation, and an independent-sample *t*-test was carried out to examine the differences.

5.5.1 Usefulness

Differences in means between male and female students on their overall perceptions of the instructor websites is presented in Table 5.15. The Table includes an independent samples *t*-test for validation of the results.

Table 5.15
Gender Comparison: Overview

Variable	Male		Female	
	Mean	Std. Dev.	Mean	Std. Dev.
Improved information access	3.49	.665	3.42	.694
Improved access to instructor	3.32	.795	3.26	.765
Allows remote access to lecture material	2.98	.891	3.62	.562
Improves internet competency	3.15	.729	3.24	.725
Improves course satisfaction	3.08	.783	3.32	.720
Increases resources access	3.05	.680	3.20	.770
Increases study flexibility	2.95	.742	3.22	.743
Cost effective	2.85	.959	3.23	.955
Saves travel time	2.88	.921	2.89	1.013
Increases my productivity in class	2.72	.743	2.85	.703
Result	3.05	.506	3.22	.479

Overview Result			*t*-test for Equality of Means		
Gender	Mean	Std. Dev.	*t*	df	Sig.(2-tailed)
Male	3.05	.506	-3.288	341	.001
Female	3.22	.479			

Table 5.15 shows that female respondents had higher mean scores than males in a majority of the overview variables, resulting in m. 3.22, sd. 0.479; with males at m. 3.05, sd. 0.506. The *t*-test showed significant differences between male and female students with (t (341) = -3.288, p = 0.001). Thus the finding indicates that instructor websites at UQU were more useful for female students than male students.

5.5.2 Website Content

This part of the survey considered study participants' evaluations of the type of information, resources, communications, and interaction available on the instructor

websites. Table 5.16 sets out the responses by gender, and contains a *t*-test validation for potential statistical difference.

Table 5.16
Gender Comparison: Content

Variable	Male		Female	
	Mean	Std. Dev.	Mean	Std. Dev.
Lecture material	2.55	.639	2.89	.347
Administration	2.41	.657	2.62	.597
Announcements	2.50	.695	2.40	.711
Exercises	2.46	.690	2.40	.657
Instructor information	2.40	.699	2.25	.709
Emails	2.15	.764	2.53	.690
Library and resources	2.12	.698	2.22	.730
Discussion forum	1.94	.719	2.35	.681
Website references	1.98	.693	2.25	.699
Result	2.32	.371	2.47	.299

Overview Result			*t*-test for Equality of Means		
Gender	Mean	Std. Dev.	*t*	df	Sig.(2-tailed)
Male	2.32	.371	-3.130	201	.002
Female	2.47	.299			

Table 5.16 presents the analysis that illustrates differences between the mean scores of male and female students' perceptions of the content of their instructors' websites. The Table shows differences between the mean scores, as well as a slight change in the gender ranking order of the variables. Whilst the lecture's materials were viewed as the most useful variable for both genders, the discussion forum and website references were more meaningful for female students. Overall, the Table reveals that female students had higher mean scores in most website contents, resulting in a higher overall response of m. 2.47, sd. 0.299; whilst males' results were m. 2.32, sd. 0.371. In addition, an independent-samples *t*-test was conducted to examine the significance of the mean differences between the two groups. The *t*-test results showed that the difference between male and female students on their perception of the websites content was significant, with (t (201) = -3.130, p = 0.002); thus the finding indicates the content of instructor websites was more meaningful for female students than male students.

5.5.3 Learning Experience

This section considers the effects of instructor websites' on students' learning experiences, and compares gender responses. Table 5.17 shows the results, and includes the *t*-test validation.

Table 5.17
Gender Comparison: Learning Experience

Variable	Male		Female	
	Mean	Std. Dev.	Mean	Std. Dev.
Flexible access to learning	3.07	.718	3.25	.660
Additional resource method	2.93	.842	3.27	.707
Facilitates revision	2.93	.763	3.19	.654
Improves learning experience	2.89	.829	3.19	.724
Assists achievement	2.96	.735	3.09	.587
Facilitates instructor engagement	2.79	.731	2.96	.685
Facilitates learning activities	2.75	.781	2.94	.777
Result	2.90	.529	3.13	.449

Overview Result			*t*-test for Equality of Means		
Gender	Mean	Std. Dev.	*t*	df	Sig.(2-tailed)
Male	2.90	.529	-4.202	340	.000
Female	3.13	.449			

Table 5.17 illustrates the differences of mean scores between male and female students on their perceptions of the influence of instructor websites on learning. In this Table, female students had higher mean scores in all learning statements than male students, resulting in m. 3.13, sd. 0.449; and m. 2.90, sd. 0.529; respectively. Moreover, an independent-samples *t*-test was conducted to examine the significance of the mean differences between the two groups. The results showed that the differences between male and female students on this question group were significant, with (t (340) = -4.202, p = 0.000). Female students at UQU therefore reported that instructor websites had a greater effect on their learning than male students reported.

5.5.4 Interactions

The basis for this set of questions concerned the website opportunity for enhanced communications and interaction with students' instructors and their peers.

Table 5.18 shows the means of the responses, by gender, and includes a *t*-test validation.

Table 5.18
Gender Comparison: Interactions

Variable	Male		Female	
	Mean	Std. Dev.	Mean	Std. Dev.
Improved communication environment	3.16	.769	3.38	.769
Enhanced interaction experience	3.15	.739	3.38	.648
Flexible instructor communications	3.02	.752	3.23	.632
Improved feedback	2.90	.761	3.19	.636
Encourages collaboration and sharing	2.81	.789	3.16	.648
Enhanced peer interaction	2.77	.746	3.08	.783
Increased motivation to contribute	2.70	.803	2.94	.683
Improved academic discussion	2.69	.817	2.93	.713
Opportunity to contribute to class resources	2.57	.832	3.05	.689
Result	2.86	.569	3.15	.470

Overview Result			*t*-test for Equality of Means		
Gender	Mean	Std. Dev.	*t*	df	Sig.(2-tailed)
Male	2.86	.569	-4.957	338	.000
Female	3.15	.470			

Table 5.18 compares the mean scores of male and female students' views on websites interactions. As can be seen, female students had higher mean scores in all interactions statements than male students, m. 3.15, sd. 0.470 for female students; and m. 2.86, sd. 0.569 for male students. Further, the independent samples *t*-test results were significant (t (338) = 4.597, p = 0.000). This result underlines the importance female students at UQU place on their communications and interactions on instructor websites.

5.5.5 Obstacles to Access

This part of the survey considered potential issues that study participants may encounter in accessing their instructors' websites. Table 5.19 shows the responses by gender, and includes a *t*-test to evaluate statistical difference.

Table 5.19
Gender Comparison: Access Issues

Variable	Male		Female	
	Mean	Std. Dev.	Mean	Std. Dev.
Insufficient ICT infrastructure and resources	2.87	.956	2.64	.854
Inadequate encouragement to utilise website	2.95	.975	2.50	.919
Lack of technical support	2.76	.937	2.69	.852
Inadequate computer literacy	2.53	.904	2.36	.948
Irrelevant for course completion	2.04	.919	2.14	.784
Access unnecessary	2.05	.927	1.82	.896
No difference between forms of information	2.02	.844	1.71	.834
Result	2.46	.539	2.26	.525

Overview Result			*t*-test for Equality of Means		
Gender	Mean	Std. Dev.	*t*	df	Sig.(2-tailed)
Male	2.46	.539	3.518	337	.000
Female	2.26	.525			

Table 5.19 shows a comparison of male and female students' means regarding potential access issues using their instructors' websites. In this case, male students had higher mean scores in the majority of obstacles statements thus results were m. 2.46, sd. 0.539 for male students; and m. 2.26, sd. 0.525 for female students. The *t*-test showed significant differences on perceived obstacles between male and female students with ($t(337) = 3.518$, $p = 0.00$). The result is therefore that male students reported that they encountered greater barriers to access than female students.

5.5.6 Summary of Gender Comparisons

This part of the analysis considered potential variability between male and female students' responses to the survey, and thus the research questions. These questions probed the male and female respondents' separate views on an overview of the websites, their learning experience, communications and interactions, and any obstacles they could potentially encounter in accessing the website material. The findings were statistically validated at each stage, with gender differences confirmed each time.

The responses showed a distinct pattern for female respondents inasmuch as they viewed as significant the effects of their instructors' websites more so than the male students. The findings show that female students found instructor websites at UQU were more useful and their evaluations of the type of information, resources, communications, and interaction available on the instructor websites were higher than males reported. Female students also had higher mean scores for the majority of variables in website content, especially the discussion forum, and websites references. Next, female students considered that instructor websites had a greater effect on their learning than their male counterparts; and female respondents placed more importance on their communications and interactions on instructor websites. However, male participants reported greater barriers to website access than female students encountered.

5.6 Students' Responses to open ended questions

This section presents the analysis of students' responses to three open ended questions to explore their views on their instructor websites, and the advantages and limitations of website use to support their learning experience. As expected, not all questionnaire respondents commented on these matters. Although women were more forthcoming in their opinions than the male respondents, there was little difference between the genders regarding their views on the websites. A thematic technique was used for analysis (Bryman & Burgess, 1994; Burns, 2000; Minichiello et al., 2008). To validate the analysis through peer debriefing, a Saudi colleague also assessed the data (Brenner, 2006). The responses from the participants are shown at Table 5.20 and discussed in order.

Table 5.20
Coding for Open-ended Questions

Theme	Category	Sub-category	Comments Number
Website characteristics	Website content	Lectures (summary/notes; presentation; audio/video recorded)	77
		Tests/exams (exam samples; electronic tests)	48
		Syllabus (objectives, requirements, schedule)	24
		External references (related websites; e-books; video clips)	18
		Design (clarity/attraction)	8
	Communication - interaction features	Announcements (exams; activities ; results; absent/attendance rate)	65
		Contribution (course materials; commenting)	40
		Feedback (answer enquiry; instructor's contact details)	26
	Course administration	Provide online submission feature	14
		Routine maintenance	12
		Offer technical support	9
		Allow students supervision	2
Website advantages	Flexibility	Access (information, activities)	83
		Communication/Interactions	58
		Time	24
	Enhanced course delivery	Facilitates understanding	44
		Allows curriculum review	28
		Enhance interaction/online discussion	28
		Preparation before lectures	25
		External references	14
		Promotes learning	4
	Cost-effective	Saves travel	24
		Saves on printed books	13
	Using technology	Confidence	18
		Skills	7
Website Issues	ICT Infrastructure	Internet service at UQU's campuses	68
		Internet service at university dormitory	44
	Website design/ administration	Lectures summary	36
		Discussion forums	30
		Ability to comment or contribute	21
		Technical issues	18
		Poor structure	4
	Lack of reward	Online activities extra work	25
		Classroom attendance	11

5.6.1 Website Characteristics

The students' responses to website characteristics were divided into three categories, content, communication and interaction features, and administration. In the content area, the majority of students reported that instructor websites should provide lecture summaries and test samples; a few were interested in the design of their instructors' websites. The majority of respondents also expected course data such as notices, activities, examination results to be posted on these websites, and that they had the opportunity contribute to course materials. Thirdly, the study participants reported some concerns with the websites' administration, noting that attention should be directed towards clear structure of the website pages for easier navigation, greater technical support and the nature of the uploaded files. There was a suggestion that a student in each course could act as webmaster.

5.6.2 Website Advantages

Respondents to the questionnaire noted advantages of the instructor websites as a supplementary instructional resource, flexibility, enhancement of course delivery, cost-effectiveness, and affording practice in using technology. The majority of all participants responding placed the flexibility of remote access of course information as the greatest advantage; they also added the enhanced ability of contacting instructors, and that by using technology they could use spare time for studying.

Another advantage of the websites noted by the study participants was the change to the curriculum delivery, they were finding online materials attractive and that the materials assisted in understanding the topic. Other comments included greater ease in following the course structure. The students appreciated online discussions with peers and faculty; and that preparation for lectures and examinations was much easier than the traditional book-based system. On this point, participants noted that there were substantial time and cost savings in online reference material on instructor websites as there was less need to visit the library and attend supplementary venues when the same information was available on a website. Finally, study participants noted the positive benefits of practising their technology skills by accessing the websites and navigating through the web pages and links to additional course resources.

5.6.3 Issues Regarding Websites

The last open-ended question on the instrument explored study respondents' perceptions regarding the obstacles or limitations of their instructor websites as supplementary resources for their courses. During analysis, the data were coded as categories related to the UQU's ICT infrastructure, those regarding the website design, and personal observations of the participants. The issue of most concern was the low standard of internet services at UQU; a basic requirement for the blended learning approaches that was a policy of the establishment. This issue was exacerbated by the lack of technical support for the university's ICT. The female participants also reported that the internet service was not available in their university dormitory.

The second major limitation was related to the design and content of instructor websites. Participants stated that the benefits of online course material and information were compromised by the limitations in quantity and quality of that material, especially the website design and information such as lecture notes, and therefore they were unable to fully contribute to online discussions. Further, there were problems with some files which could not be downloaded because of size or that they required specific software. Finally, study participants found that with coursework writing assignments and no reduction of lecture theatre attendances, they lacked time for online assignments which they considered was extra work.

5.6.4 Summary of Observations

The questionnaire respondents, when given the opportunity to express their opinions and observations through open-ended questions, described the expectations and concerns of using an online learning environment in blended curriculum delivery. Overall, the respondents appreciated the opportunity to have the curriculum materials on hand whenever they wished to access or review information, and the further opportunity of immediately following up through query, feedback or online discussion. In such circumstances of great change, the move online as a supplementary curriculum delivery media was not found to deliver to the level that students desired and thus the ICT infrastructure and the ability of web designers to meet the expectations of the respondents was not in evidence.

5.7 Chapter Summary

This chapter commenced the study analysis, presenting the results of the quantitative analysis, a questionnaire for students at the Umm Al-Qura University. After a brief description of the analysis method, the results of the first section of the questionnaire were presented, that which depicted a profile of the student sample. A slight bias toward male students was found, which may have reflected on results if the responses were unclear, however, gender differences were explored as part of the quantitative analysis. There was a considerable bias to fourth-year students, who represented almost half the sample. Again, this outcome could be viewed as benign, as these students should have had more access to instructor websites than less-experienced students. The university faculties were each represented, however, the social sciences and education-based disciplines predominated in the sample. Further, study participants were generally full-time students living within a half-hour travel time of the university, although 20 per cent of the sample reported travelling for longer periods and thus could potentially benefit from access to online communications and course material.

The next part of the questionnaire requested data on participants' ICT environment, their computer skills, and their experiences online. Good or excellent skills were reported for basic computer activities, however, the responses were not as clear for all other activities, including emailing. This was emphasised by the result that nearly one in five respondents did not have the internet at home, relying on the university or other places for access, and that the university did not promote ICT training. Thus it could be predicted, and was reported, that only one-third of respondents reported confidence in their ICT skills. The proportion of study respondents who regularly accessed the internet did not check their instructors' websites with the same frequency. Further, over 40 per cent rarely or never accessed their instructors' websites; whilst the remainder checked weekly or more frequently.

The third section concerned the students' evaluation of their instructors' websites as a resource, as a communication aid, and as a learning aid. As a supplementary resource within the curriculum, the students found the websites very useful, particularly for access to their instructors, and for lecture material and course information. The website content was also popular; again for lecture transcriptions and notes. The participants generally considered the websites as part of their learning

experience, finding the online resources flexible and useful means of communication and interaction between students and instructors. The final series of structured questions in this part concerned perceived obstacles to website access, and participants reported concerns regarding the university's inadequate ICT infrastructure, resources, and technical support; and instructors' lack of encouragement for website usage. Further, inadequate computer skills and inability to access the internet at home contributed to these issues.

The quantitative analysis included establishing statistical differences between the participants' responses based on gender; that is, their evaluation of instructors' websites as an overview of the websites, the learning experience, communications and interactions, and the access issue. The female respondents found the websites more useful and their evaluations of the type of information, resources, communications, and interaction available were higher than the male respondents reported. In addition, female students had a greater overall appreciation of the instructor websites' content than male students, with some differences in their respective preferences. Female students also considered that the websites had a greater effect on their learning, communications and interactions than was perceived by male participants. However, male participants reported higher barriers than female students to website access. With the open-ended questions allowing respondents to comment on their experiences, the questionnaire in total was summarised by the comments, the flexibility and ease of access to course materials was appreciated, however the university was viewed as unable to support the blended learning function at quite the level of expectation of its users.

Whilst the results of the quantitative analysis describe students' views on the efficacy of their instructors' websites, the qualitative analysis enriches this data by providing the educational, physical, and social environments for the ancillary study resource. These factors, as the qualitative analysis, are presented in the following chapter.

Chapter 6 Qualitative Data Analysis

The previous chapter concerned the quantitative analysis by means of a student questionnaire, whilst this chapter presents the qualitative findings through interviews with the instructors. The interviews with the instructors were conducted to complement the quantitative findings and to gain further insight into the blended learning at Umm Al-Qura University (UQU). The interview questions, provided to participants prior to the interviews, addressed the research sub-questions some of which are common to both types of study participants. The semi-structured questions seek instructors' views on the value of specialised websites as a supplementary instructional resource for their face-to-face courses (appendices C & D). Further, there is an investigation regarding issues that may impact on the adoption of online learning at UQU.

Seven instructors who use individual websites for course delivery agreed to be interviewed in Arabic and further agreed to the use of a digital audio recorder. Notes were made during the interviews to identify emerging themes and pursue interesting responses. The records were transcribed as soon as possible after the interviews in Arabic and translated into English, together with the interview notes. A thematic technique was adopted to analyse and code the data so that four main themes emerged. The data were examined on the basis of keywords and linking phrases. These themes form the structure of this chapter and are objectives, utilisation, benefits, and issues.

6.1 Objectives for Instructor Websites

The first theme aimed to establish the reasoning for a specific website as part of, or to supplement, course delivery. Using the coding system on the data from the interviews, five categories (objectives/reasons) emerged under this theme. These categories were to augment teaching techniques, enhance learning, improve instructor/student interactions, and university policy and ICT environment (Table 6.1).

Table 6.1
Objectives of Instructor Websites

Categories	Subcategories
Augments teaching techniques	Saves lecturer's time and useful to trial teaching methods
	Uses presentations and multimedia to clarify ideas
	Enriches content
	Useful record of lectures and activities, ease of use
	Attractive to students and leads to greater interest in subject
Enhances learning	Enriches student knowledge and experience (more activities and references)
	Displays curriculum content (save student costs for books)
	Provides explanatory material, such as samples of past exams
	Offers consultation with lecturer
Improves intercommunication	Facilitates lecturer-student communication
	Creates links between students
	Online discussion and dialogue beyond classrooms
	Delivers announcements
	Communication with female students/offsite students
University policy	University policy to use ICT
	Ability to increase student numbers
	Perception of a paradigm shift in use of ICT in universities
	Enhance students' use of technology

6.1.1 Augments Teaching Techniques

The data from the interviews indicated that improved instructors' performance was an objective for specific websites. Although there were some overlapping objectives reported, the underlying theme was that specific websites for instructors enhanced their productivity, allowing more flexible time allocation and better organisation of course activities.

The majority of interviewees pointed out that through providing all course-related materials on their websites they became more time-efficient and were able to

implement a variety of teaching methods in lectures such as cooperative learning and discussions. Without the use of such aids, the lectures merely disseminated information and interaction was minimal. With the websites, students could prepare for the session and participate in discussions. Participant T01 considered that the website

> gives more space to invest the classroom and lecture time in dialogue or discussions with students, and allows some teaching strategies such as cooperative learning, brainstorming and other strategies that can be used during the lecture instead of relying on an oral presentation of the information.

Other instructors (such as T03 and T05) referred to the opportunity to enrich their subjects via external and additional references on their websites, and that this feature was beneficial and effective for students and teachers. For example, T03 said that

> to have the lecturer fully connected with the students, that is, concerned with explaining the subject matter and not being restricted to the course materials. Further, the site can accommodate other objectives, knowledge linkages or anything of general nature that the student may need.

T05 asserted that *"*even external reference books or external websites are being uploaded on the site". Moreover, in some subjects, such as scientific subjects, some topics required the use of multimedia in the presentations. Participant T04 stated that it was useful to

> use modern technology such as presentations in the commentary when explaining things that the student cannot comprehend using traditional lecture materials. We can now use animated presentations to clarify an idea . . . Sometimes we also upload a video after a lecture on a scientific topic.

In addition, T02 and T03 for example, emphasised the flexibility to reuse and modify the materials on their websites and the manner by which these materials can be accessed and used by both students and instructors. T02's objective was

> to document all the subject activities and place them on the internet to allow universal access to faculty and students.

T05 agreed:

> all my lectures were converted into multimedia and PowerPoint to improve presentation and their effectiveness. Moreover, the lectures are now on the internet to allow students to review the material again, or catch up on any lecture that may have been missed.

Furthermore, the majority of instructors in this study were seeking greater

satisfaction of the course with their students through the use of technology in their learning. For example, T03 said

> Students find the internet attractive; we try to get students familiar with modern technology – information technology … This at least accustoms the students to information technology and to benefit from it as it is imperative that the students get into that habit. We are, at present, trying to make the approach attractive to students for what will become compulsory later.

In summary, the results of the participants' views on the category "augments teaching techniques", were that the instructors' websites were a useful support to the course delivery which would eventually become the main course delivery platform. By placing attractive and useful course-related material on these websites, instructors were serving a series of objectives, greater productivity, improved time-efficiency, enriched lecture experiences, better communication with students, and freedom to explore other teaching strategies.

6.1.2 Enhances Learning

Participants in this study nominated several website applications adopted to facilitate students' learning. These applications included, integrating further resources and activities, offering consultation, providing past examination questions as samples, and offering the contents of the prescribed curriculum online.

The majority of the instructors, T06, T01, T02 and T05, discussed that curricula materials offered on their websites enabled them to enhance the knowledge and experiences of the students. For example T01 explained that one enhancement was in providing the students with website links and course references which were readily updated. T02 added that "there must be some enriching external information distinct from the core purpose of the curriculum". However, other participants sought only to display only their lecture materials each week. An instance of this was T03's attitude to "comply with any new policy of the university, whether it's a prescribed book or a change to the curriculum. Further, the site is always updated and current".

Participants T04, T01, and T05 were interested in enhancing their students' learning experiences through website provision by extending their core material. As well as lecture notes, they added observations, summaries, and examples of previous presentations. The students can then access these materials at any time, and explore the relationships and linkages to extend their learning experience. This has taken

considerable time and resources as T05 explained. “All my lectures were converted into multimedia and PowerPoint so that the curriculum becomes easier to understand and an effective resource for students”. This is especially valuable if a student was absent from a lecture, as there was less likelihood of missing a crucial element of the course and dropping back behind the group’s knowledge and experience. Participant T01 noted one case where a student was pregnant and unable to attend the university for a month, however, she maintained her progress in the subject. This would be very difficult to achieve using traditional teaching methods, however, with regular website updates and instructor communications, students in difficulties attending the university are now able to maintain their course participation and thus facilitate gaining their qualifications.

Whilst examples of past exams and copies of the prescribed curriculum were readily available as hard copy, the online versions were another advantage according to some instructors. Participant T07 noted this as an important attribute of a course-related website, given that there was greater prevalence of home computers and students could download the material and use it as part of their study routines. Further, student costs were minimised through their access to current and extensive course materials such as textbooks: “The second objective goes back to the contents of the prescribed curriculum that includes large reference books which may contain up to two thousand pages. I was eager for others to benefit from these references”.

The dimension that specialised website access enhances students’ learning is critical to the university’s charter. The university seeks to embed learning as a part of life for the students, as the pace of change in their community is such that lifelong learning will become the norm for entry into the job market. Thus gradually changing information flow from traditional media such as static board-based presentations and lectures to online access allows more time for discussion and student input at the university. Whilst the depth of involvement with instructor websites varied in this stage, students agreed that the websites were current, regularly updated and highly relevant. For students, access to their course material was enhanced, the curriculum could be varied and more interesting, and in the case of temporary difficulties, they could remotely access the course material, assignments, and resources.

6.1.3 Improves Intercommunications

It was interesting that the majority of study participants referred to improved communication and interaction with their students. This was of concern among university faculty in general, that the pace of work and the attendance times for coursework were such that the opportunity of discourse with students was minimal. They said that these barriers were mitigated by the website opportunities; that the interactive and communication features on the internet were already very useful and would play a significant role in the future.

Participants T01, T03, T04, and T06 agreed that their websites offered a continuous communication channel with their students through an email list, a discussion forum, and a comments box. For example T03 stated that

> the objective of having the site is to be a means of communication between the lecturer and the student, not only in the classroom and lectures but rather as a continuing resource throughout the academic year.

Further, participant T06 asserted that "interaction with the students is not now restricted to the duration of the lecture in the sense that there is the opportunity of continual communication". This continuous communication is two-way, as it effectively benefits both instructors and students. Instructors can effectively make announcements or alter published material, that is, date or time changes, additional resources for assignments, or even alerts to pending changes in university administration. Participant T04 explained that the website was used

> to deliver announcements as well as to continuously stay in touch with the students in terms of setting exam timetables, include certain alerts and notes such as changing the lecture location or lecture time instead of using the traditional ways like attaching notes to doors.

Moreover, discussion forums on some of the websites made it possible to start discussions and dialogue beyond the classroom. Of importance to this study, instructor T01 declared that students need to be considered as

> an effective member contributing to the education process, as his/her role is no longer passive. And in light of their interest in technology, we are mindful to communicate with the students through this site . . . to provide the opportunity to start discussion and dialogue, give their opinion and communicate with the lecturers and students beyond the university.

To encourage students' participation and therefore their learning, these

discussions were often goal-oriented. According to participant T02

> I . . . propose a certain problem to the students and ask them to comment on it and also to comment on the commenter; thus the students get accustomed to communicating with each other.

To present the salient points from this category, "improves intercommunication", it became obvious that the greater majority of the participants embraced the opportunities offered by the websites in fostering communication. The majority noted the advantage of being able to contact their students with announcements (without notes on doors). This minor point was extended by T01 and TO2 towards the paradigm shift in pedagogy which was placing students at the centre of the learning process and presenting them with the opportunity to find their own paths of learning: "to provide the opportunity to start discussion and dialogue".

6.1.4 ICT at the University

As shown in the previous responses, the majority of participants strongly supported the use of the internet in education and utilised many of the facilities on their specialised websites as supplementary course resources. Participants T01, T02, T03, and T05 argued that there was a great need in higher education to invest in technology, especially the internet:

> information technology has a fundamental role in the development of the educational environment. Without doubt, (investments in ICT) would lead to improvements in education effectiveness as well as the type and quality of teaching. (T03)

Participant T01 also asserted that there was "a great need to invest in and employ (ICT) in serving education".

Due to infrastructure and censorship issues in the Kingdom, families were slow to adopt the internet and the main internet access remained dial-up (Al-Shohaib, Al-Kandari, & Abdulrahim, 2009). However, participants T03 and T05, for example, stated that once the students gained familiarity with technology through their coursework they would use it more effectively throughout their education which "is another objective of attracting students to . . . use modern technology – information technology" (T03). T05 agreed that "the main objective is to include the student in the loop and to make him/her capable of dealing with the electronic technology, as I touched upon the points of

weakness of this technology and dealing with it".

Another aspect of the instructors' use of their websites was public pressure for education. Over the last few years, the numbers of enrolments at UQU significantly increased. As a result, instructors and students complained of crowded facilities, including lecture rooms, where the instructors and students had insufficient time and opportunities to communicate. According to participant T01, "the increase in student numbers in the classes is worrying us a lot and thus, through these sites, we are trying to inform students anywhere; not just at the university".

Moreover, in cases where the instructors and students were of different genders, the legal and practical issues regarding communication increased (Baki, 2004). The online learning environment, therefore, became an ideal solution of this issue. T06 pointed out that he was "teaching female students and there is some difficulty in communicating directly, with their enquiries and remarks, and the site facilitates this aspect".

In addition, the university began to devote more resources to the integration of technology to improve academic performance. This was due to the government's policy for more ICT in education as well as a means to cope with the increased student enrolments each year. At the time of this study, UQU did not yet offer distance or fully online programs, however instructor T01 said that "the university is starting to adopt the idea of electronic education and remote education". Participant T06 also mentioned that there is a (need to adopt ICT emerging) "in the University. It has been (forming the policy of) communicating with the students by means of electronic sites or through the internet".

Placing ICT in a Saudi context, there were several issues for UQU to overcome. Although mobile phone use is ubiquitous, fixed broadband is not commonplace in Saudis' homes, thus there may be issues in the technological maturity of Saudi families, an issue for the participants. Further, UQU must move with the sector into online education, as the instructors observe, and the university policy-makers have the problem of educating their share of the thousands of secondary school students coming into Saudi universities each year. Females are entering previously male-dominated universities at unprecedented rates, thus male lecturers and tutors must educate young women. The use of ICT in education is an obvious pathway for Saudi education.

However, as T05 mentioned, the "main objective is to include the student in the loop and to make him/her capable of dealing with the electronic technology".

6.2 Website Users

The second theme of the interviews considered the types of use of the instructors' websites. The questions therefore focussed on the instructors' use of the websites and the students' access and interaction, as shown in Table 6.2.

Table 6.2
Access and Contributions to Instructors' Websites

Category	Subcategories
Instructor use	Offering summaries and notes of lectures
	Extended explanation of points raised by student
	Presenting course-related information online (e.g., grades, announcements)
	Uploading prescribed materials
	Facility for secondary discussion of issues
Student use	Sending inquiries or questions to the instructor
	Review of the subject content
	Responding with the uploaded materials e.g. comment
	Submission of assignments through the website
	Placing an opinion for group discussion at lectures

6.2.1 Instructors' Usage

It is of note that the instructor participants in this study developed their own websites to facilitate the course delivery and enhance students' learning experience. Therefore, there was variation among their sites. This is consistent with the discussion in the websites' description at the methodology chapter (see Section 4.2.1). Despite the constraints in designing and populating their sites, then monitoring and maintaining the content, the majority of interviewees stated that the websites gave them greater flexibility and freedom to extend lecture material, resources and communication.

The majority of participants (such as T02, T05 and T06) highlighted benefits of uploading their lectures, summaries, and notes online as very useful for students'

comprehension of the subject matter. As noted, participant T05 (see Section 6.1.1) said that all course lectures and presentations were recorded for the course website. In some cases, the instructors included activities or questions to illustrate and support the lecture:

> the same lectures that I give to the students are uploaded on the site so that the students can benefit from them . . . I have the educational goals (of) a full lecture with its enriching activities. I let the students answer the questions and send them for me to review. In addition, I add links to four or five sites discussing the topic as references. (T02)

Instructors review students' enquiries and comments on the websites and can add more explanation and explain misunderstood points. Participant T06 commented that

> I particularly stress the enquiries that are raised because the student may inquire about a particular point that may have been understood by all students except him/her where he/she did not grasp it and needs extended explanation and therefore, I broaden my explanation for that particular student.

Participant T03 added that the information already on the site "may avoid the need for non-content related discussions during the lecture or (answer) some of the students' queries". Moreover, the majority of interviewees emphasised the extra time saved by the website during lectures. Most of the course content (such as notes, questions and references) was made available online as well to save further time in the lectures. According to T01

> The site supports interaction during lectures, is a very strong stimulus for group-based education, and allows one to invest more lecture time in dialogue with students and to implement strategies such as cooperative learning, brainstorming and many others that can be utilised during the lecture instead of relying on oral presentation of information.

In summary, the lecturers were mindful that preparation time on their websites allowed greater participation of students in the lecture environment. A forthcoming lecture could be introduced, objectives explained and questions posed. Resources could be either placed online or links provided for the students to explore. Further, the lecture could then be uploaded with presentations and summaries to allow access by students who had missed the lecture, or review by students to understand a point they had misunderstood. The time and planning that the participants invested in their websites was indicative of the importance they placed on technology.

6.2.2 Students' Usage

The intention of the instructors' websites, as noted, was to gain a more efficient means of communication with students external to lectures, and to enhance the learning experience. Due to the university's online policy for the promotion of curriculum delivery, the majority of participants were exploring the means by which they could enhance the students' learning experiences. The instructors offered a variety of communication and curriculum tools for students, an inquiry service, access to updated course information such as lecture summaries, submission of assignments, and sharing their ideas with their instructors and group members.

On communication matters, participants T03, T04, T05 and T06 explained that their websites had inquiry boxes, and that their contact details included email addresses to facilitate the students' questions or inquiries after lectures. According to T06

> The student may have subsequent questions about the subject material and could as such correspond with me and I can answer him/her at any time. There are also frequently asked questions which I can put on the site for the benefit of all.

In addition, some instructors such as T03 and T05 encouraged their students to submit their assignments electronically through the university's assignments submission service. As T05 stated "I request the students to hand-in their assignments through a section in the forum opened and dedicated to submission of assignments".

Further, instructors such as T01 and T05 offered their students the opportunity to add or comment on the website content or contribute to their ideas. They believe that students could have a proactive role, and contribute to the revision or development of the lectures on the website. Participant T05 stated that

> After a lecture I place a summary and some key points that were presented on the website. Sometimes the students' questions and their discussion through the lecture raise points that can be added to the course material.

Participant T01 added "The student also has the option of placing a personal opinion to be discussed with the colleagues in later lectures".

To place these points in perspective, the instructors described that students gained benefits from the websites through improved communication channels, greater contact with the lecturers and their fellow students, and the ability to pose questions and contribute to a class debate on the course material. Further, there was an opportunity to

review the lecture, discuss points, post opinions and undertake administrative matters such as submitting assignments.

6.3 Website Benefits

The third theme of the interviews investigated the outcomes from the instructors' websites at UQU. The interviews were focused on the positive aspects of students' learning, the interactions that occurred, and the instructors' performance. Therefore, the data under this theme was classified into those three categories (Table 6.3).

Table 6.3
Benefits of Instructor Websites

Categories	Subcategories
Learning	Enriched information sources and thus knowledge
	Opportunity to follow up lectures.
	Review and practise samples from previous exams
	Enhancement of students' learning outcomes
Teaching	Effective use of lecture time
	Ability to conduct tests online
	Alternative and effective means to explain subject
Communications	Enriched communications with instructors
	Increased flexibility for female students to communicate with instructors
	Enhancement of student-student communications
	Increased linkage of practice to learning
	Improved student preparation for lectures

6.3.1 Learning Benefits

A focus of the instructor websites was the opportunities that multimedia offered in enriching the learning experience. Therefore, this section of the interview inquired whether the instructors had noticed changes to the students' outcomes since the website functions were introduced, and whether they noticed improvements in their students' learning behaviours. This area was also explored through the quantitative data

collection from the students' questionnaire. The analyses of both sources of data should be a useful triangulation mechanism for enriching this study's outcomes.

The interviewees gave a diversity of responses to this question. The majority stated that the introduction of the websites improved student learning, whereas others were uncertain of the effects on students of the websites. Participants T01, T02, T06, and T07 reported a positive impact of the websites on their students' learning behaviour, and that the availability of the course-related information such as reference sources and activities could augment the students' knowledge. They expected their students to take advantage of the online materials and enrich their information sources:

> I hope that the students take advantage of the topics available on the site such as the subject materials' follow up . . . or other external readings. I expect them to enrich their information through their readings. (T06)

Participant T01 argued that the availability of online materials are a significant advantage to those who have medical or other circumstances preventing them from attending the university. As noted, the participant cited the case of a female student who found it difficult to attend classes due to a complication in her pregnancy (see Section 6.1.2). However, she could follow the lectures online.

In responding to a query regarding the most effective application of the website, participant T02 commented that

> the best point is the availability of the educational subject material with its enriching activities. This is a very important point. As far as the students are concerned, the activities in particular are very good as they send me their answers and I return them after correction.

Participant T07 mentioned that students were interested in the exam samples available online:

> The most important area that the students always take interest in and always has a priority is exam samples . . . I have made available an incredible amount of these and this is the important feature for the students.

Importantly, those instructors who said their websites benefited students' learning behaviours commented that their students' grades improved. In responding to the differences of their students' marks after the implementation of their websites, participant T07 stated that "there has been a difference when I test the students (weekly). I find some of them claiming that they have benefited from the questions

available on the site and thus their learning outcomes have improved". Similarly, T01 responded "Yes, I noticed in one of the subjects that the marks were significantly higher".

On the other hand, some instructors (such as participants T03, T04, and T05) were uncertain of the effect of their websites on their students learning. Participant T01 elaborated that there were mixed outcomes "until now, as far as learning is concerned". The participant continued

> I give the students some examples and questions and request them to review them, then I later ask them the same questions but no one answers. I don't know the reason, it could be that the student is engaged in other things and that is affecting his/her learning.

Participant T05 stated that

> The student comes to the lecture accustomed to the classical style and thus is surprised with this style and that I am asking him/her to use the internet and to prepare (for the lecture) beforehand. I believe that this is the reason why the learning behaviour (with the instructor websites) is the same as before . . . I also believe that the new style (of lecture delivery) for the student is creating another problem as he/she is used to paper-based tests and thus the student gets lost in the complexity of this new system and this lowers his/her grades.

In summary, the outcomes from the use of the instructor websites for students' learning behaviours were mixed. Whilst four respondents reported a positive outcome for students' learning behaviour, the effect reported by the remaining lecturers was that the students were either confused over the change in delivery of the curriculum, or an inability or disinclination to access the material. The extra activities and the availability of test questions on the websites were positive aspects of the curriculum delivery, however, there were change management issues arising from website use.

6.3.2 Teaching Benefits

Given that the instructors in this study developed their own websites, there was a linkage between the content on the site and benefits to curriculum delivery or teaching style. In this category, the data revealed that the instructors' websites has enabled the instructors to use their lecture time more effectively, conduct trial exams, and introduce other explaining delivery options.

Greater freedom for conducting the lecture period occurred by placing the majority of course-related information, reference sources, and discussion forums online. Students could post their queries and access class administration information online instead of wasting class time. Participant T01 noted that the accessibility of course-related information online "saved me considerable time for classroom teaching and allowed me to invest lecture time in more dialogue, discussion". Participant T06, however, had a slightly different view, as the lecturer's website did not facilitate discussion "it only spared me time with the expansion of some further points that I leave for the site . . . But this may improve later, as I have plans to dedicate part of the discussion online".

Of interest, the majority of instructors mentioned that the websites enabled them to use different teaching methods to enhance student understanding and engagement

> placing the lecture's topic as well as its key points online is something that saves me time and I can therefore use the extra lecture time introducing new material to stimulate the students' interest on that topic (T06).

Moreover, the participant noted the benefit of online tests that were conducted in class

> two years ago we were trying to conduct term exams (during the lecture), finding that they were consuming a large portion of the lecture. Nowadays, I test my students more than six times each year; both on the website and during the lecture. Without a doubt, the website provided me extra time, and increased the number of exams.

The majority of the instructors stated that their websites allow greater flexibility during lectures, however, they considered the websites' content as supplementary information. They hesitated to integrate the website materials into the course curriculum, as participant T03 explained that the use of his website

> has not affected lecture times because, so far, the traditional teaching method is used. I cannot shorten some (content in the lecture) and transfer it to the site for a number of reasons. For example, some students do not have an internet background, while, to others, internet usage can add to their learning burden and could also be costly. We currently consider the internet as supplementary to the course, and merely to get the students accustomed to using it.

The benefits to the process of curriculum delivery appeared to be muted in this introductory phase of the technological and pedagogical change; and the participants were treating their websites as adjunct to the traditional lecture room delivery. Thus the participants were finding their way online and utilised different aspects of the websites.

Whilst the full change to blended learning pedagogy had not yet taken place, there was still the need to deliver the full curriculum in the lecture theatre. However, there were some participants who required that at least some tests were undertaken online.

6.3.3 Communication Benefits

The majority of the interviewees agreed that the blending of online learning environments enhanced lecturer-student interactions, as described.

> In my view, the Saudi Arabian educational experience is characterised by a lack of effective dialogue between the teacher and the student; the communication we have is one-sided. I encourage dialogue and communication with the students through the website and I believe this is extremely important. (T02)

Further, participants T01, T02, T04, T05, and T06 acknowledged that the availability of online communication and interactive features facilitated communication and discussion with the instructors outside lecture times. For example, participant T06 said

> In fact, I lacked the means of communicating with the students after the lecture. This is a very important point because the student may receive information in the lecture but afterwards, when alone, he/she may reflect on some points in the subject and many questions may arise but the lecture time does not enable him/her to discuss them. Therefore, the student can communicate with me through the site and I can fully reply, as an individual communication. The participant added that personal needs need direct communication with the lecturer and they can be awkward to ask in front of other students.

Similarly, T04 asserted that

> the website enriches interaction. There are now many questions that come by email discussing points from the lecture. Moreover, the students may alert me through the site, for example, to misprints in the lecture material and that proves that there is good interaction.

The interviewees (male instructors) who had female students stated that the website was of assistance in communicating with their students. The majority of the participants approved of the extra flexibility of online communication with women. Participant T03 stated that

> I want to stress the importance of the website to female students in particular as I found it to have great benefit for them. The female students' circumstances in the Kingdom are unlike those of the male students. The only time she can benefit from her lecturer is during the lecture as she cannot contact her lecturer

> at any other time as can male students, hence she is confined to all interaction at the lecture.

Participant T06 agreed with T03's statement

> In fact, this website has given the female students a communication opportunity that did not exist before. For example, it was difficult for the female student to call on the mobile or the like and many lecturers rejected that. The site enabled this advantage by sending emails and receiving a reply, at any time, even straight away after the lecture. Also, if the female student did not understand a particular point she can ask about it and I can fully explain it on the site and in a suitable manner.

Participants T01 and T05 stated that the instructor websites enhanced student-student interactions. According to participant T01

> Inter-communications between students are of great interest and particularly welcomed by female students. The increasing student numbers do not allow them enough time to get to know each other in the lecture, but by using the website they can search for outstanding female students through communicating with each other.

Participant T05 concurred:

> I also believe that the students interact. The evidence is that some students tell me in the lecture that they received help in uploading their assignment from one of their colleagues, for example, or in downloading things from the website, thus there is interaction between the students through the website.

It is expected that the growing student-instructor and student-student interactions will result in better student-content interaction and lead to a better understanding of the subject. Interviewees such as T01 and T05 could notice the development of student-content interaction. Participant T05 pointed out that the accessibility of online materials before class helped students to prepare for the lesson, so they then become familiar with the presentation that would be delivered. As a result, their interaction in the lecture environment improved and this is an objective of the new pedagogy. Participant T01 asserted that

> in fact, I noticed that the students started to discuss and interact much more than before. I have been teaching this subject for more than eight years and I noted that, through this website, dialogue opportunities are increasing, particularly for female students; they started to link practice to learning and post examples on the site. The male students, as well, started to open discussions.

The majority of participants found it very important that they were able to increase their communications with students. As participant T02 remarked, the style of curriculum delivery in Saudi Arabia followed the hierarchical principles of lecturing to students with minimal interaction. Technological change facilitated communications and the results were greater interaction between the instructors and the students, and intercommunications between the students. Thus the policy of the university to open discussions between instructors and students was having results.

6.4 Issues Regarding Website

The last theme in the interviews referred to factors that may prevent the implementation of blended learning at UQU. The data under this theme have been grouped into three categories, factors related to the students, factors related to the instructors, and factors related to the university. Further, the interview results and the questionnaire results are expected to clarify these issues arising from the introduction of the website as a supplementary resource of curriculum delivery.

Table 6.4

Issues in Using Instructor Websites

Categories	**Subcategories**
Students	Standard of computer literacy
	Lack of access to the internet at home
	Low motivation for online learning
Instructors	Standard of computer literacy
	Lack of time/work load
	Insufficient recompense Nature of their discipline
	Preference for traditional pedagogical methods
	Concern regarding online copyrights
University	ICT infrastructure
	ICT professional resources
	Insufficient motivation from government

6.4.1 Students' Issues

The majority of the instructors (T03, T04, T05, and T06) reported that the computer competency of the students was the major issue affecting use of the instructor

websites. Participant T06 said that "sadly, the first factor is that there are some students that do not know how to use a computer, but there are not that many". The participant claimed that some "students are hesitant to use computer, are afraid of not being sufficiently skilled or that their computer literacy may be incorrect". Similarly, participant T05 argued

> An important issue for the student is being able to gather information from the internet as his/her internet knowledge is very superficial . . . the student always complains of overloads and cannot choose between commitments.

Participant T03 concurred, however, the interviewee also noted the students' ICT competency levels:

> we should not forget that the mere use of the internet depends on prerequisites, first, there has to be some knowledge in information technology. Some students may not possess a computer and do not know how to search online for the required information.

In addition, interviewees pointed out that some students were not motivated to use or contribute to the websites. Participant T03 claimed that such a student "does not see the internet as a primary source of information, and this is caused by the educational system". Participants T01 and T02 argued that male students have lower motivation to use the internet than females.

> In general, female students are drawn to the internet and it is becoming popular with them. With the male students, I found the opposite. One of their main problems is that they are not serious in contributing to the sites as well as not serious about educational attainment and I believe this is an attitude that is dominant among male students. (T02)

Participant T01 asserted that "for the male students, the main problem is they are not interested in online learning as the idea is still new".

Furthermore, instructors mentioned that some students do not have the internet at home. Those students may live in the rural areas where an internet service is still not available or they may live in accommodation where the internet is not available, such as the female students' accommodation at UQU. According to participant T02

> female students thus cannot access the site except on Thursdays and Fridays, the weekend when they can go home or visit friends as the internet is not available in the university's dormitories.

Notably, participant T01 asserted that even outside the university, some female students lack access to the internet: “the social problems in terms of privacy and conservatism are that some female students are banned from using the internet by their parents”.

The participants raised many points regarding student use of the internet, access availability, computer literacy, and social constraints. Of interest to this study is the trend toward computer usage by women, as they see it as a means for communication and it is especially useful to ask questions of their instructors and to contribute to class discussions. For male students, the use of the internet in education is not popular as they are not yet obliged to use it. They may be also less competent than the females and have a social fear of competing against females on an online forum.

6.4.2 Instructors’ Issues

In responding to the issues that may prevent the instructors at UQU from utilising the internet/online learning in their curriculum delivery, the interviewees revealed the lack of professional development, lack of incentives, insufficient time to develop online materials to supplement their traditional pedagogical methods, and lack of copyright for their online material. The majority of participants claimed that some instructors at UQU lacked computer competency and could not use their websites. Participant T06 stated that some instructors at UQU “may be computer illiterate in the first place despite the university’s encouragement”. Participant T04 added that “lecturers with long service in the faculties do not have computer experience and do not seek a new learning experience”. Participant T03 agreed, stating

> that the majority of the teaching staff at Umm Al-Qura University are aged over fifty five years; thus they are traditionalists and are not familiar with technology nor are they convinced by it … (they) do not want to use the internet and thus don’t know how to use it.

In addition, the majority of interviewees suggested that the lack of time for the instructor may influence their desire to use or create their websites. This is especially true as the instructors’ teaching load would not be reduced, as the websites were considered an informal use of online learning. According to participant T06, instructors “may have no motivation or be afraid of increasing his obligations . . . the lack of time, as well, may lead to this result”. Participant T04 also asserted that the time taken to establish and maintain individual websites adds to the load of teaching staff. Participant

T07 stated that time limitation is an issue: “their time is already tight and barely sufficient to prepare for a lecture, let alone go to a website and upload further material”.

As noted, instructors may prefer traditional lecture room methods. Participant T06 addressed this issue saying that some instructors

> lack appreciation of the importance of dealing with students through electronic sites. The instructor might not appreciate the importance of communicating with the student through the internet.

As well, participant T01 mentioned that some instructors are hesitant to make their work available online, as they aware of the potential for illegal use of their materials “it is a matter of keeping the intellectual property rights”.

Further, the nature of the course may play a role in the use of technology in education. Some interviewees suggested that instructors in the scientific disciplines have greater appreciation and familiarity of the use of technology in their courses. According to participant T07, “we find that scientific disciplines are more inclined to use technology than the literature or theology faculties who were not forced to learn computing or its subjects”.

It therefore appears that the issues for instructors using websites were partly structural from insufficient incentives or directives from the university, but mainly attitudinal. There was a high degree of resistance to learning new pedagogical methods incorporating ICT by lecturers across the university who were nearing retirement and did not want to change their teaching styles. Further, there were certain faculties who adopted ICT, for example science and engineering faculties, and others who did not undertake ICT courses and lacked computer literacy. Finally, those who may use their websites cited lack of time in preparation.

6.4.3 University Infrastructure Issues

The interviewees highlighted issues in providing an online learning environment in blended curriculum delivery that were related to the university. The majority of the participants criticised the university’s infrastructure, especially the ICT capability. As mentioned in Section 2. 3, the provision of adequate ICT, especially the university’s intranet, was slow and inadequate. Although the university was expanding rapidly, there was a lack of computer availability, including the university intranet and external internet services in many buildings. Therefore, the interviewees reported that their

students were unable to access “a specific location such as internet labs where the student can enter at anytime and work” (T04). Similarly, participant T01 listed issues with the ICT infrastructure configuration, equipment, and suitable lecture theatres.

Participants such as T01, T04 and T06 mentioned that there was a lack of capable ICT staff, as participant T06 said “the university is enormous and needs staff”, such as specialists in integrating online learning applications. Participant T04 stated that “I believe they lack top specialist experts in these fields, in addition to the support of the university’s administration. The infrastructure, as well, for such kind of learning is considered inadequate”. In addition, participant T07 commented “many universities are reluctant on this aspect [e-learning] in terms of financial support”. Further, instructors were not motivated as “they don’t find a financial result, as an example, and this is the most important matter for them as they think time is therefore wasted”. (T07)

The participants noted that the university’s ability to gain resources sufficient to accept qualified school leavers had strained the country’s resources and that other Saudi universities were in a similar position to UQU. Thus they lacked quality ICT infrastructure, policy enforcement and incentives to fully integrate the blended learning delivery. However, these points are common elements of change management and it was the university’s responsibility to fulfil its commitment to the new pedagogy.

6.5 Chapter Summary

The findings regarding the online learning environment from interviews with faculty members at Umm Al-Qura University were presented in this chapter. The interview questions addressed the research sub-questions, with some questions common to study participants who responded to a questionnaire and those who were interviewed. Seven instructors who use individual websites for course delivery were interviewed and their responses coded and analysed. Four main themes emerged and these were objectives, utilisation, benefits, and issues.

The first theme, objectives of the instructors’ websites, were categorised as augmenting teaching techniques, enhancing students’ learning experiences, improving intercommunication and fulfilling government policy directives. The findings were that the instructors’ websites were a useful support to the course delivery and would eventually become part of the curriculum delivery. The participants stated that the

policy objectives were that the websites should be used to gain greater productivity, improved time-efficiency, enriched lecture experiences, better communication with students, and freedom to explore other teaching strategies. To expand students' learning experiences, the participants were changing information flows from traditional media to online access to allow more time for discussion and student input at lectures. The participants reported that the websites were current, regularly updated and highly relevant. The intercommunications provided by the websites were extremely useful for updating course information and administration, and the interviewees reported taking questions and fully explaining the course material. Importantly, the websites facilitated intercommunications within the class cohort, so that students had the opportunity to find their own paths of learning. The final category of the objectives, as the instructors observed, included the university's social contract with the government. UQU must move with the sector into blended and online learning. The use of instructor websites in this study offered a means to educating the rising numbers of undergraduates; and the website facilitated communications between female students and the male university staff. Lastly, instructor websites were a means to train students to use the internet as an educational resource.

The second theme related to website usage. The interviewees noted that they could prepare students for a lecture topic through notes and questions placed on the website. The lecture in full or summarised could then be made available for revision or for students who had missed the lecture so that they could remain in contact with the subject. The students used the websites for greater contact with the lecturers and other students, and they could enter a dialogue on the topic. Further, they could post opinions and use the websites for administrative matters such as submitting assignments.

The interviewees were asked their opinions on the benefits of websites. The three categories that emerged were curriculum delivery, learning benefits and communication. However, the findings regarding improved student results were mixed, with a small majority reporting a positive outcome for students' learning behaviours, and the others variously were reporting that the students were challenged by curriculum delivery changes. As the study occurred during the introductory phase of the pedagogical change, as defined through the Ministry of Higher Education's staged introduction, the participants were exploring aspects of their websites merely as adjuncts to traditional lecture delivery. However, there were at least some tests

undertaken online. Communications were highly rated as a benefit of the websites by the participants, resulting in greater interaction between the instructors and the students, and intercommunications between the students.

The final theme, issues arising from the instructors' websites were categorised as those of the students, lecturers, and the university's resources. The participants raised obstructions regarding student use as access, computer literacy and social constraints. They reported that the female students were adopting instructor websites more readily than their male co-students as they perceived it as a neutral communication channel. Issues regarding instructors' use of their websites were partly structural from insufficient incentives or inadequate support from the university. However, they stated that there was resistance by the majority of lecturers nearing retirement against changing pedagogical methods incorporating ICT. Certain faculty members such as literature and religion lacked computer literacy, whilst others lacked sufficient time for preparation or cited copyright restraints in publishing their material online. The resources of Saudi universities were strained in their attempts to educate all university applicants and thus UQU lacked quality ICT infrastructure, policy enforcement, and incentives to quickly integrate the internet within course delivery. However, the finding of this study is that university management was not adequately addressing the government's directive to fulfil its commitment to the new pedagogy, that is, blended learning.

The next chapter takes the findings from the previous chapter, that of the students' responses to a blended learning environment, and that of this chapter, responses from their lecturers, to discuss the outcomes for the study. This brings together the extant findings from the literature regarding use of blended learning designs in higher education and pedagogical trends to form conclusions and ultimately recommendations for research and for the policy makers of the Saudi higher education.

Chapter 7 Discussion

The aim of this research is to examine the views and experiences of Umm Al-Qura University (UQU) instructors and undergraduate students who participated in the provision of a blended learning environment. In particular, the study examines the influence of blended learning at UQU on the learning, teaching and interactions of faculty and students. The study investigates the benefits of blended learning designs for faculty and students at UQU. It also identifies the factors that may affect the adoption of online learning at UQU and elsewhere. Further, the study identifies differences in male and female students' experiences and perspectives, as these are relevant to the Saudi social environment. The research question is how do instructors and undergraduate students at UQU perceive the implementation of blended learning? There are six secondary research questions that guide this study.

Q1: How useful do instructors and their undergraduate students at UQU find blended learning environments?

Q2: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the instructor and student interactions?

Q3: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the learning quality?

Q4: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the teaching quality?

Q5: How do male and female students differ in their perceptions of blended learning at UQU?

Q6: What are the factors that affect the adoption of blended learning at UQU?

In this study, a mixed methods design was employed to enhance the data collection and analysis in order to answer the research questions (Creswell, 2009; Creswell & Plano Clark, 2007; Doyle, Brady & Byrne, 2009). A triangulated mixed methods design was employed to obtain data-rich responses. In the triangulation design, the researcher aims to achieve greater validity through studying the corroboration between quantitative and qualitative data (Creswell, 2009; Creswell & Tashakkori,

2007; Teddlie & Tashakkori, 2009). This design was therefore appropriate in this study to determine convergence of perspective and corroboration of results from the perspectives of instructors and students.

Semi-structured interviews were conducted with seven male faculty members who were using their individual websites as a supplementary instructional resource, and self-report questionnaires were distributed to their male and female undergraduate students, of which 344 were returned. The results of the questionnaires and interviews were presented in Chapter 5 and Chapter 6 and the results are analysed in this chapter, which discusses the findings.

Thischapter consists of five sections which relate back to the research questions in this study. The first section of the study discusses the change of university environments in Saudi Arabia, including UQU. This is followed by the discussion of students' and instructors' perspectives on the usefulness of blended learning at UQU. The third section addresses the influence of blended learning on interactions between students and instructors. This is followed by the instructional effects; that is the influence of the pedagogical approach on the learning and teaching processes. Factors seen as barriers in developing an online learning environment at UQU are then considered in the last section.

7.1 Changing Environments for Universities

Saudi Arabian government programs are delivering information and communication technology (ICT) capabilities throughout society. There is no more important sector than education, which is charged both with leading by example and implementing contemporary standards of computer competency towards an information-based society (Section 2.4). To emphasise these points, the National Communications and Information Technology Plan (Ministry of Communications and Information Technology, 2007, p. 5) states that the transformation of society

> requires the promotion and development of educational curricula, teaching and learning methods as well as dissemination of new constructive concepts and values in the society that encourages innovation, invention, creativity, work perfection, productivity, raising initiatives.

To implement the Saudi National Development Plan, the Ministry of Higher Education directs the higher education establishments to increase their use of ICT,

especially in the university environments. The ministry implemented several projects and initiatives to increase the adoption of ICT, including online learning applications (Ministry of Higher Education, 2010b). More recently, the ministry has placed more attention on blended learning approaches, which are gaining contemporary acceptance as methods for delivering quality learning experiences in higher education (Allan, 2007; Garrison & Vaughan, 2008). As an approach to the challenges of educating an unprecedented number of Saudi youth, issues of gender, and inadequate instructor resources, courses provided through blended learning are eminently suitable in improving the learning experience and raising the qualifications standards.

Blended learning approaches are, however, relatively new, and opinion is divided on the best approach (Anderson, 2008; Garrison & Kanuka, 2004). Due to the novelty of blended learning in the Saudi university environment, there are questions regarding the balance and content of blended learning designs. Saudi universities, and the Ministry of Higher Education, continue to develop online curricula to suit the Saudi context, especially as there is insufficient online material available in Arabic. Alebaikan (2010) believes that "using an Arabic term for blended learning would provide a better understanding of this new learning approach" (p. 222). The author states there is insufficient definition between blended learning and e-learning in Saudi higher education; universities such as King Saud clearly identify blended courses, while many other universities such as UQU assume blended learning, or e-learning, as a supplement to attendance at the university for instruction.

To effectively implement blended learning in Saudi universities requires a clear policy and an understanding of the appropriate design and rationale for this new environment. As a contribution to the literature on the phenomena, this study documents the views and experiences of students and instructors at UQU who participated in blended learning environments, using instructor websites to investigate their responses. Using the university's portal and exploring online capabilities with assistance from the university's Information Technology and Technical Support Centre, the instructors in this study structured online pages to support their lectures, provided an enhanced learning experience through linked multi-media resources, and gave students opportunities to explore, practise through tests, and discuss their needs and opinions. As UQU is in Makkah, this was particularly useful during the significantly crowded *Hajj* season, and it also assisted in gender constraints which inhibit women's interaction with

men. These instructor websites were used for course contents and activities, that is, activity-level blended (Graham, 2006).

As a traditional university highly regarded for its Arabic and Islamic studies, UQU is pursuing blended learning as a pedagogical evolution as well as a means to educate the increasing number of students who seek professional disciplines for their careers. In UQU's balance between face-to-face instruction and online support, blended learning planning and design has therefore to be structured to take into account diversification of traditional faculties. Further challenges are curricula to meet the needs of the growing ICT-oriented professions that range from engineering and science to researchers and librarians, as well as the physical and contemporary demands for higher education to cater for growing student numbers and campus expansion, inadequate funding and resources, insufficient instructors and their increasing workloads. For the purposes of this study, it appears that the faculty members are particularly burdened by the processes of change so that a potential course of action in using online support merely adds to their workload rather than addressing it. The university requires substantial investment and commitment to implement blended learning through decision making, policies and practices, administrative and pedagogical systems, curricula, and infrastructure and facilities. Whilst no extra time in instructor training or class times was allocated for the first steps into online learning support, there remains the opportunity for the university to gain from these first tentative steps to blended learning.

7.2 Benefits of Blended Learning

To address an objective of this study, this section discusses the views of both UQU instructors and students regarding the assistance they found from blended learning environments. Their views are indicators of their acceptance of this new learning and teaching environment, and their reflections on the online aspects of blended learning are a useful indicator to future curricula designs using multimedia as well as influencing attitude and intentions to learning and teaching (Davis, 1989; Davis & Venkatesh, 1996). The results of this study show that students and instructors are in agreement that blended learning at UQU is useful, and agrees with the literature in this regard (Fox, 2002; Garrison & Vaughan, 2008; Graham et al. 2005; Hatch, Bass, Iiyoshi, & Pointer-Mace, 2004; Holley & Oliver, 2010; Iqbal et al., 2011).

In the following sections, the advantages of blended learning are discussed. The review of the literature in Chapter 3 shows that benefits include accessibility, flexibility, and cost-effectiveness, and these frame the discussion comprising first of all students, gender, and then moves to the instructors' views.

7.2.1 Students' Views of Blended Learning

The results in Table 5.9, Overview of Instructors' Websites, indicate that students found their instructors' websites were useful, with an overall mean of 3.125 (4 point Likert scale) and standard deviation 0.791. Respondents to the questionnaire noted advantages of the instructor websites as a supplementary instructional resource, enhancement of course delivery, flexibility, cost-effectiveness, and offering practice in using technology. Students found advantage in online educational materials and activities, however, a majority placed the flexibility of remote access of course content and information as the greatest advantage; they also selected an enhanced ability for contacting instructors. The accessibility to lecturer's materials and notes online increases the convenience of students' learning, offering them more time to review and understand the material, as well as offering a chance for those who were absent to familiarise themselves with the lecture. These results broadly concur with a study by Leung and Ivy (2003) in the United States, where the majority of their student participants found access to instructor website for course lecture notes, class schedules, and information on assignments and tests enhanced their learning. Vaughan (2007) and Lin, Q. (2008) reported that a clear majority of students who had experience with blended courses were positive about their learning environment, particularly citing time flexibility. López-Pérez et al. (2011), Vaughan (2007) and Yuen et al. (2009) found student preferences for the online component of blended learning. Remote access to the university and its resources was identified by students in this study as a major advantage of blended learning.

The students' views of accessibility advantage in the use of their instructor websites were consistent through different parts of the data. In response to the most useful feature of the instructor websites in Table 5.10, Instructor Website Content, students reported the accessibility to lecture materials, course information, announcements and exercises as most useful. The online access of lecture materials such as presentations, references, and lecture notes was the greatest advantage with a

mean of 2.71 (of a 3 point Likert scale) and standard deviation 0.551. Students also confirmed this finding when they expressed their views in the open ended questions. They reported that the advantage of their instructor websites was in the flexibility of access to information and educational materials (83 comments); followed by the flexibility of communication and interactions with instructors (58 comments). In a comparative study, Susskind (2008) found that students preferred course presentations online, reporting higher self-efficacy, and positive attitudes toward the class, thus this finding agrees with contemporary literature. Further, Kember et al. (2010), Nachmias and Segev (2003), and Yuen et al. (2009) noted that web-supported academic courses assist student interaction with their instructors and among their peers.

Students valued the online access to course information such as timetable, announcements, and information on the grading system. As this information can be easily updated online, this form of communication is more efficient. This is especially true regarding announcements. In the open ended questions students explained that uploading announcements such as the cancellation of a lecture saves their travel time. Students mentioned that in some cases they came to the campus only to find a lecture cancelled; online communications prevented this wasted time. This finding is consistent with other research; for example, Olapiriyakul and Scher (2006) asserted that among other factors, accessibility to course content supports blended learning at many universities. Access to educational resources in blended learning curricula is frequently raised as an advantage of blended learning in the literature, attested by findings of Graham (2006), Garrison and Vaughan (2008), and Kali et al. (2009).

Change to the curriculum delivery was an advantage of instructor websites noted by the study participants. They believed that online materials were more attractive and that the materials assist in understanding the topic, and this concurs with Susskind (2008). As a result, they agreed that due to the use of their instructor websites, satisfaction was enhanced, with a mean of 3.18 and a standard deviation 0.764. While this finding can be considered as an advantage of blended learning, it can be said that the flexibility and accessibility of learning contents and activities influence the students' satisfaction. Lectures are of necessity didactic with large course enrolments, dominated by the instructor. Blended learning approaches, however, offer more possibilities for academics to enhance the students' engagement and expand the content of the lecturer

through the integration of online materials, which can include multimedia features (Garrison & Kanuka, 2004; Griffin & Thomson, 2008).

Other advantages such as cost-effectiveness and students' engagement were also identified, but to a lesser extent. Blended learning is expected to reduce cost of education (Graham, 2006) and promote active learning in class (Vaughan, 2007). However, students in this study were less appreciative in relation to the cost effectiveness; and they rated the enhancement of their productivity in class as the lowest benefit. This finding is reasonable; as discussed in Chapter 2, education and health are free to all Saudi citizens. Therefore, the financial benefit of the use of their instructor websites is not obvious. Secondly, there are some limitations to website design as instructors in this study were not fully proficient at this task. Student emphasis on the accessibility to the course materials and information on their instructor websites does not necessarily mean that the websites were effective. In relation to the future characteristics of the websites, students indicated that the development of online content should gain more attention. Over 170 statements mentioned the need to develop website content adequately; students indicated that websites should provide an effective online record of the lectures, such as presentation slides, notes, or summaries (77 comments), followed by exam samples and online quizzes (48 comments). Supporting this view, Grabe and Christopherson (2008) found that a blended learning format of online lecture resources, lecture attendance, and examination performance positively related.

The nature of instructor websites, it appeared, and the university environment, influenced the students' perspectives. With some technical assistance, instructors built their websites, generally to enhance the accessibility of course materials and information, or to facilitate student communications (see Table 6.1, Objectives of Instructor Websites), whereas less attention was afforded to the integration of online and face-to-face instruction towards an enhanced blended learning approach. This could be the result of policy deficiencies at the university, so that implementation of blended learning principles into pedagogy is not adequately supported and thus there is insufficient guidance on blended learning methods, or for advanced training in website design and maintenance. ICT programs at UQU are basic, focusing on fundamental computer and internet skills such as Microsoft Office applications and emails, and this was also noted as an issue by Garrison and Kanuka (2004) and Concannon et al. (2005). Littlejohn and Pegler (2007) mentioned that mixing two different teaching

methodologies added a layer of complexity for instructors when preparing blended learning instructions. Alebaikan (2010) indicated that faculty required more skills in relation to pedagogical and online instructional designs to implement blended learning effectively. Therefore, students rated productivity enhancement in their class activities as of low benefit.

The principle of blended learning in a course should be the integration of the best features of face-to-face and online learning environments (Osguthorpe & Graham, 2003; Twigg, 2003; Young, 2002), in such a manner that it can "promote active, self-directed learning opportunities with added flexibility" (Vaughan, 2007, p. 82). Blended learning enhances student engagement in media and activities that are not possible in traditional face-to-face classroom activities, such as simulations, online tutorials, and interactive activities or quizzes (Graham et al., 2005).

Another factor in this study that may enhance the students' perspectives towards the accessibility advantage in instructor websites is the significant increase of the student numbers at UQU and other Saudi universities. As discussed in Section 2.3, the increase in student's enrolments, which results in insufficient lecturers and overcrowded courses, is considered a major issue for the university. Instructors with large course enrolments find difficulty in efficiently providing quality curricula materials to their students (Oliver, 2005; Picciano, 2009; Stacey & Gerbic, 2006). Blended learning, in this case offers a variety of options that enhance the students' accessibility and understanding of the subject (Littlejohn & Pegler, 2007). Gender-segregation also contributes to these issues when a male instructor teaches female students without adequate interaction, as occurred with some participants in this study. This problem leads to female students instructed by male faculty, a legal and moral dilemma reported by a number of researchers such as Alhazmi (2010), Al-Munajjed (1997), Al-Saggaf (2004), and Tubaishat et al. (2008). Mirza (2008) explained this further by describing the delivery of courses by male instructors to separated male and female students in adjacent lecture halls. However, there was a low level of in-class participation by female students. Mirza found that women students reported that ICT inadequacies in claiming the lecturer's attention a greater barrier to communication than the presence of members of the opposite gender. In this study, in light of Mizra's findings, it was expected that female students could have issues with lecturer accessibility more so through inadequate communications than social pressures.

In this study, gender comparisons are presented at Table 5.14, Gender Comparison Overview, and this reveals that female respondents had higher mean scores than males in a majority of perceived advantages, resulting in m. 3.22, sd. 0.479; with males at m. 3.05, sd. 0.506 (Likert scale of 5). Such findings indicate that blended learning is more meaningful to female students than males. The differences of their perspectives were significant with (t (341) = -3.288, p = 0.001). Interestingly, there was a slight difference in the ranking of the reported advantages between males and females, although the increase in student productivity in class remained as the lowest advantage. These differences are presented in Table 7.1.

Table 7.1
Rated Gender Comparison of Blended Instructor Websites

Male Students	Female Students
1. Improved information access	1. Allows remote access to lecture material
2. Improved access to instructor	2. Improved information access
3. Improves internet competency	3. Improves course satisfaction
4. Improves course satisfaction	4. Improved access to instructor
5. Increases resources access	5. Improves internet competency
6. Allows remote access to lecture material	6. Cost effective
7. Increases study flexibility	7. Increases study flexibility
8. Saves travel time	8. Increases resources access
9. Cost effective	9. Saves travel time
10. Increases my productivity in class	10. Increases my productivity in class

As could be predicted, female students considered remote access to lecture materials as the major advantage of blended learning (m. 3.62, sd. 0.562), whereas males placed less value on remote access, at sixth place (m. 2.98, sd. 0.891). This finding reflects women's status in Saudi Arabia where they are not allowed to drive or communicate directly with unrelated men, including their instructors. Moreover, the majority of female students at university are married, so they may miss classes if they are pregnant or for family reasons. For example, participant T01 noted one case where a student was pregnant and unable to attend the university for a month; with online assistance, she maintained progress in the subject. This would be difficult to achieve using traditional teaching methods, however, with regular website update and instructor

communications, students having difficulty attending university are now able to maintain their course participation to gain their qualifications (Alebaikan, 2010; Littlejohn & Pegler, 2007).

In relation to the differences between male and female students' perspectives of the most useful features of their instructor websites, results in Table 5.15, Gender Comparison and Content, reveal differences between the mean scores, as well as a slight change in the gender ranking order of the variables. Whilst lecture material was viewed as the most useful variable for both genders, the discussion forum and website references were more meaningful for female students. This finding agrees with Tubaishat et al. (2008), who noted that online learning in gender-separated environments encourages communication and collaboration. Further, a study of Saudi women college student participants by Al-Salem (2005) reported that their internet experiences, especially online discussions, added to their knowledge and stimulated critical thinking, which the author considered a pre-requisite for perspective transformation. This study's finding reflects women's status in higher education and their interaction issues with male instructors in the Saudi universities and is a positive contribution to the women's self-knowledge.

7.2.2 Instructor Responses to Blended Learning

The flexibility of blended learning designs makes it beneficial for both instructors and students (Ocak, 2011; Vaughan, 2007). Blended learning improves pedagogy as well as increase access and flexibility of learning (Bersin, 2004; Graham, 2006). It is also an effective approach of large lecture instruction to promote connectivity between students and instructors (Garrison & Vaughan, 2008; Graham, 2006; Olapiriyakul & Scher, 2006; Yuen et al., 2009).

This section discusses instructors' views of the online component of blended learning. The majority of instructors in this study indicated that the use of their websites has enhanced teaching, learning, interactions and communications in their course. These perspectives, in fact, reflect the potentials of blended learning in higher education. Bonk et al. (2006), Knight (2010), Shroff and Vogel (2010), and Vaughan (2007) asserted that faculty who delivered blended courses were positive regarding their experiences. In this study, however, instructors were expected to be positive regarding the benefits of blended learning, since they developed websites for this purpose.

The data from the interviews indicated that improved instructors' performance was an objective for creating their websites. Although there were some overlapping objectives reported, the underlying theme was that the development of the websites for instructors enhanced their productivity, allowing more flexible time allocation and better organisation of course activities. The analysis shows a clear relationship between the reasons for development of the websites, and the benefits that instructors reported. Instructors in this study indicated that they created their websites to augment their pedagogical techniques as well as improve communications between student and instructor (Dale, 2010; Garrison & Vaughan, 2008; Graham, 2006; Yuen et al., 2009). Such enhancement of delivery and interactions positively influences student learning which instructors believe is an objective for their websites.

Other benefits of blended learning design reported by the instructors were that websites afforded more time in lectures, allowing the transfer of information and directions beforehand that freed up time during the lecture to introduce initiatives such as cooperative groups and discussions, as participant T01 explained. This concurs with findings by Graham et al. (2005), Ocak (2011), and Vaughan (2007) who found that making sufficient time to embrace the online component of blended learning absorbed instructors' time for instruction, planning and administrative matters.

Interaction and communication between instructors and students and the student body are essential in both online, through flexibility and efficiency of communication, and the social presence of face-to-face learning environments, as findings show from Garrison and Vaughan (2008), Graham (2006), and Yuen et al. (2009). Rovai and Jordan (2004) found that "blended courses produce a stronger sense of community among students than either traditional or fully online courses" (p. 1). In this study, the instructors also provided lecture materials online enhanced with multimedia features to promote student understanding and interest in the subject. For example, participants T04, T01, and T05 said that their websites could promote their students' learning experiences through extension of their core material, with participant T05 noting that all his lectures were converted into multimedia. Overall, there are multiple reasons for faculty to adopt an online component in blended learning. Vaughan (2007) reported that enhanced interaction, increased students engagement, and flexibility of the teaching and learning environment are factors that relate to faculty satisfaction. In this study, a

purpose for developing the instructor websites was the enhancement of communication and interaction between instructor and students.

To summarise, students and instructors at UQU view blended learning as a useful approach. Access and flexibility were considered the main advantages of blended learning, while cost-effectiveness and engagement with course materials were less valued. The study's findings add to the body of research by identifying further advantages of blended learning from a gender perspective. Although this could be argued as unique to Saudi Arabia, it could have effect on other traditionalist, and Islamic societies. This study discussed effects on male and female students as universities offer blended learning in Saudi Arabia. The following section explores closely the influence of blended learning on the interaction between students and instructors, another objective of this study.

7.3 Communications and Interaction with Blended Learning

Student-instructor communication opportunities at UQU reduced as the campuses grew to accommodate an influx of students, particularly women, and this student gender balancing was not met by adequate numbers of qualified women instructors (see Section 2.2). As Islamic practices and the law restrict communications between unrelated men and women, verbal interchange forms a barrier between male instructors and their female students. Thus blended learning at UQU through online discourse was expected to provide adequate communication between students and instructors. The following sections explore this form of communication and interaction from the students' viewpoints in general, and then gender. Moreover, the instructors' perceptions will be discussed as a counterpoint to the findings. Interaction is a core element of educational experience; in both face-to-face and online learning environments, interaction is a common subject in educational research (Jung, Choi, Lim, & Leem, 2002). For example, the lack of interaction in the first generation of online learning systems caused many educators and institutions to reject the online learning approach (Graham, 2006; Littlejohn & Pegler, 2007; Singh, 2003; Wu et al., 2010). Nevertheless, conventional curricula delivery also confronts interaction issues due to increasing student numbers, or the use of traditional didactic teaching methods. With the increasing usefulness of ICT, educational systems are adopting technology in curricula delivery to enable greater interactivity between the student and instructor, and

between the students themselves. Garrison and Kanuka (2004) asserted that effective integration of blended learning can result in a shift in the nature and quality of interaction and communications in face-to-face learning environments.

The rapid development of ICT in society and commerce resulted in a proliferation of social multimedia communications; where email and internet can be accessed anywhere through mobile phones or hand-held computers (Garrison & Vaughan, 2008; Wagner, 2006). Wagner (2006) explains

> we live in a world where we send e-mail from our personal digital assistants (PDAs) and can shoot a digital movie with our mobile phone and then post it to a personal Web site while waiting at a stoplight. (p. 41)

As part of this changing environment, Saudi Arabia is witnessing technological advancements at perhaps a greater rate than others due to its later entry into technological infrastructure and thus greater use of wireless ICT. Mobile phone and internet subscription numbers increased significantly in recent years (see Section 2.4), and this is especially relevant to tertiary institutions such as universities, as they must lead by example with the new technologies. The instructors in this study employed ICT to increase connectivity with their students to enhance their learning experiences.

The purpose in blended learning systems, according to Garrison and Vaughan (2008), is to integrate the strengths of both learning environments to maximise opportunities for improved communication and interaction. Flexibility and efficiency of communication are enhanced online, and social presence is the strength of the face-to-face learning environment (Graham, 2006). This leads to adoption of emerging internet-based applications that have become much more user-friendly and increased the demand for blended learning designs in higher education. Garrison and Vaughan (2008) believe that the efficiency of communication technology in blended learning designs allows the instructor to create a learning environment that promotes learning, teaching and interaction.

In this study, findings show that the majority of participant instructors were concerned about the limitations in student access to their lecturers, and increased contact was an objective for the course website. Participant T03, for example, stated at Section 6.1.3 that the website is a means of communication in the lectures, and also as a continuing resource. Moreover, participant T06 highlighted the interaction issue for female students; pointing out that protocol dictated that he could not communicate in

person, so that the internet was a means to receive their enquiries and to respond thoroughly, and the site facilitated this aspect.

7.3.1 Students' Perspectives

In this study, students were asked to indicate their level of agreement on nine statements, that is, variables, relating to the quality of interaction and communication using instructor websites. The nine variables examine the effects of the websites on communication, as well the three types of interaction (Moore, 1989, 2008), instructor-student, student- student, and student-content. Results in Table 5.12, Quality of Interactions, indicated that the students in general agreed that instructor websites were useful for communication and interaction. The nine variables, rated as *agree* and *strongly agree* categories, showed means between 2.78 and 3.26 (of 4 point Likert scale); making an overall result 2.99, which was above the average mean of 2.5. The results indicate that students were positive in their perceptions of interactions with their instructors in this study.

The student participants reported an improved communications environment and interactions with their instructors as the highest benefits from the instructor websites, with m. 3.26, sd. 0.776; and m. 3.25, sd. 0.707; respectively. Using the internet, the students had access to their instructors whenever they wished. All instructors provided contact details through email, while some offered further online communication tools such as discussion boards and inquiries boxes. The students valued the freedom and convenience of these services, reporting prompt feedback from instructors. With the limitations during the lecture periods, the use of online communication technology in this learning environment enabled the instructors to provide comprehensive responses to student's questions, and better feedback to assignments. This finding supports claims by Garrison and Kanuka (2004) that satisfaction with blended learning approaches can largely be attributed to the interactive and communication features of the internet. The findings of this study are consistent with other blended learning research results such as Comey (2009) and Garrison and Vaughan (2008). For example, Comey (2009) indicated that students in blended courses "perceive their instructor as being more personally concerned about them as individuals and as striving to foster their educational and personal achievements to a greater degree" (p. 107). Comey considered

that this was due to the multiple communication channels that blended learning designs offer.

The internet provides platforms such as discussion groups and chat rooms, and these also provide a base for students' engagement and an increased sense of involvement (Irons et al., 2002). The capabilities of asynchronous and synchronous communications through the internet can play a part in developing collaborative learning experiences and promote student reflection and expression (Garrison & Kanuka, 2004). Asynchronous communication such as discussion boards and emails is widely used because these pathways offer more flexibility and are easier to control (Olapiriyakul & Scher, 2006; Alebaikan &Troudi, 2010b). The most important component of blended learning is the internet in its use to promote communication between instructor and students. In a blended learning environment, Irons et al. (2002) found that students who have more access and use of online learning materials display higher participation in learning activities and communications with their instructor.

Further, Garrison and Kanuka (2004) and Wagner (2006) asserted that blended learning designs can facilitate student-student interactions and assist them in sharing ideas. Alebaikan and Troudi (2010b) find that the use of an online discussion feature in blended learning offers instructors and students opportunities to increase interactions, reflection and collaboration, and these are essential in any learning environment (Moore, 2008). Moreover, Olapiriyakul and Scher (2006, p. 299) state that

> (a)n obvious advantage of hybrid learning over traditional face-to-face instruction is that students can discuss the course content with each other, and with the instructor, anytime, by using the course online communication space. The discussion can take place asynchronously, rather than be limited to only face-to-face meetings.

In this study, the student participants placed collaboration and sharing of ideas with peers as the second highest influential outcome for blended learning approaches. On the other hand, they rated contribution to course materials as the lowest influence of their instructors' websites, with m. 2.78 and sd. 0.806; the increase of academic discussions in class m. 2.80, sd. 0.781; and similarly the motivation to participate in class activities m. 2.81, sd. 0.760. These findings differ from other researchers such as Irons et al. (2002), Olapiriyakul and Scher (2006), and Garrison and Vaughan (2008), who reported a primary role for collaboration and contribution in blended learning

designs. The outcome for this study is explained by the fact that blended learning is new to the Saudi university environment, and this adds to the complexity in designing the new curricula (Garrison & Vaughan, 2008). In addition, this finding reflects the aims of instructor websites in this study, where the focus is enhanced interaction and communication between student and instructor, more so than between students themselves (see Table 6.1, Objectives of Instructors' Websites). Participants T01 and T02 were the only instructors who mentioned the students' role in the learning process and the importance of discussion and dialogue in the construction of knowledge.

A few instructor websites in this study offered student contribution to the online materials, however, instructors such as T01, T02, and T03 reported that the majority of students, with the emphasis on men, were not disposed to contributing material online. Participant T03 explained that initially the Saudi education authorities did not consider the internet a trusted source of information and consequently students are cautious in using the medium. However, other Saudi studies such as Alaugab (2007) and Aseeri and Broad (2009) concluded that Saudi students have a positive attitude towards online learning. This researcher argues that the students' response can be attributed to the limited integration of online advantages with face-to-face delivery in the curriculum. To support this contention, there is no evidence that participant instructors attended any training programs on developing a blended learning curriculum environment, or on building online instructions (see Section 2.3.5). Inadequate integration of learning components in blended courses may negatively affect the effectiveness of the approach (So & Brush, 2008).

Over half of the instructor websites in this study did not offer access to a discussion forum and of the remainder, results in Table 5.10, Instructor Website Content, revealed that students did not perceive it as useful as other website features such as lecture notes. Of nine websites' contents, students ranked the discussion forum in 8th place. However, availability of online discussion forum in a blended online learning design rates highly in the literature, as this application can offer a wider spectrum of discussion in a course, increase flexibility and convenience, and enhance the students' engagement (Alebaikan & Troudi, 2010b; Chen & Looi, 2007; Olapiriyakul & Scher, 2006). This finding on the website discussion feature shows that instructors in this study either underestimated the effects of generating online discussion for the course participants, or that instructors lack online teaching strategies, or perhaps

both aspects are relevant. Further, time is of consequence, there is insufficient time during lectures for the instructor to respond to all questions and comments, and there are time constraints for online discussions, if the latter is to replace lecture hall discussions (Chen & Looi, 2007). This time constraint applies also to this study, where the online components of blended learning did not involve a reduction of face-to-face contact. Instructors need technological and pedagogical skills, and an understanding of the several factors that encourage or discourage students' use of online discussion. Effective online discussion in blended learning courses can enhance students' satisfaction and motivation (Alebaikan & Troudi, 2010b; Yuen et al., 2009). Yuen et al. (2009) emphasise "an adequate design for online activities, rewarding systems, (and) appropriate online tasks compatible with F2F meetings are . . . important elements" (p. 160).

For Saudi Arabia instructors, professional development is necessary to provide them with the technical and pedagogical skills necessary to build an adequate online learning environment to fully engage their students (Alebaikan, 2010; Alebaikan & Troudi, 2010a). Inadequate website building skills can effectively restrict students and instructors from the benefits of blended learning environments. Alebaikan and Troudi discuss the use of "feedback from students and instructors via regular course evaluations and other means to accurately inform university action plans" (p. 58). Alebaikan (2010) studied blended learning experiences of women students and instructors at King Saud University, whilst this study investigates similar views of male and female students at UQU. Moreover, instructors who participated in this study were males who could not approach or be approached by their female students, therefore, it is important to identify and analyse any gender differences in students' learning experiences, particularly online.

This section seeks differences on male and female students' perspectives on their instructor websites regarding interactions with their instructors and peers. Sharpe et al. (2006) indicated that many studies of blended learning environments reported no significant gender differences; and of those that have shown differences, such as Shashani (1997), found that use and confidence levels merged over time. However, Sharpe et al. (2006) asserted that in a blended learning environment, women have higher performance than men in most online applications, and in particular, online discussion.

In Saudi Arabia, gender segregation is prominent, including in education (Alebaikan, 2010; Alhazmi, 2010; Al-Munajjed, 1997; Al-Saggaf, 2004; Oyaid, 2009). In the higher education sector, male and female students usually have dedicated campuses within a university, however, with the rapid increase in the number of women students, male instructors now include women in their segregated classes (Al Lily, 2011). The findings in this study are that male and female students differ in their communication and interactions with their male instructors; it is of interest to identify whether there is a significant difference in their experiences and views of the online component of blended learning.

In a comparison between male and female students' perspectives, Table 5.18, (Gender Comparison: Interactions) shows that female respondents had higher mean scores than males in all variables, resulting in m. 3.15, sd. 0.470; with males at m. 2.86, sd. 0.569. The differences of their perspectives were significant with ($t(338) = -4.957$, $p = 0.000$). Male and female students concurred in their ranking of variables. With the restriction on interactions between female students and their male instructors, female students highly valued the flexibility and convenience of email and the discussion forum. In responding to the question of useful features in the instructor websites, female students preferred email and discussion forum more so than males (Table 5.16, Gender Comparison: Content).

This research finding shows that female students were more positive about their access to instructor websites than their male co-students, which is unsurprising due to substantial differences in available approaches to instructors. The finding also reflects the status of women in Saudi higher education and thus is of direct interest in facilitating the women's issues in accessing similar information and instructor assistance to mitigate barriers to their learning opportunities. Studies by Alaugab (2007) and Alebaikan (2010) have similar findings that female students perceive improved communication and interactions with their instructors as the primary advantage in integrating online learning with face-to-face instruction in Saudi higher education.

7.3.2 Instructors' Opinions

The complementary relationship between online and face-to-face modes of communications is one of the advantages of blended designs (Vaughan, 2007; Yuen et al., 2009). Macdonald (2006) reported that a common form of blended learning in

higher education is that of the lecture hall delivery of the curricula, supported by internet applications. Such integration introduces different forms of dialogue and new learning experiences (Littlejohn & Pegler, 2007). Garrison and Kanuka (2004) emphasise that effective integration can result in improvement in the nature and quality of interactions and communication. In general, research in the blended learning field such as that by Vaughan (2007) who asserted that instructors who participate in a blended learning environment were positive about the outcomes.

In this study, a blended learning environment involves the use of the instructor websites, which were developed to supplement face-to-face delivery of the curriculum. The inadequate communication with their students was of concern for faculty, recognising that the course workload and lecture attendances were such that the opportunity for discourse with students was minimal. Instructors in this study indicated that these barriers were mitigated by the website opportunities and that the interactive and communication features of the internet were already very useful and would play a significant role in the future. A primary objective for these websites, according to the instructors' interview responses, was to enhance communication and interaction with their students; and this outcome was reported by the majority of instructor participants. In particular, instructor T02 stated (Section 6.3.3) that inadequate opportunities for communication between students and their instructors was to a point mitigated by online opportunities to discuss matters sufficiently to gain an outcome for the student and thus build knowledge. Oyaid (2009) and Bingimlas (2010) confirmed participant T02's claim that the majority of Saudi teachers apply traditional teaching methods, a didactic style, whereas the use of ICT-based applications in the course can facilitate the shift of the pedagogical paradigm towards student-centred approaches.

In the higher education context, communications between students and instructors extends beyond the lecture to individual approaches for information and assistance (Sher, 2009). Online course support using asynchronous text can assist the instructor's ability to respond comprehensively to student issues and, in a discussion forum, save time in describing a common issue that may provoke several queries. Concannon et al. (2005) argued that, based on a solid pedagogic rationale, online course support facilitates feedback, interaction, and resource access, substantially adding to the student's learning experience. In this study the majority of participant instructors, including T01, T02, and T06, acknowledged this point. For example, participant T06

explained (Section 6.3.3) that questions arise during a lecture where, without online access to the instructor, a student would be unable to clarify a point and thus potentially lose a thread of the discussion.

Moreover, as noted in Section 7.3.1, instructors with female students valued the online facility, participant T06 remarking (Section 6.3.3) that emails were particularly useful due to their immediacy, and the ability to engage in a lengthy explanation of a point and discuss it fully. This was a relatively new phenomenon, as previously Saudi female students were only comfortable in prolonged discussions with instructors of their own gender. Now, with email, they may engage in discourse without undue embarrassment, which clouds intellectual enquiry (Sher, 2009). The majority of participant instructors therefore found their websites influential for interaction with their students.

Another advantage of blended learning is the ability to enhance student-student interactions, which are considered by several learning researchers as raising students' satisfaction of the learning experience (Shroff & Vogal, 2010; Yuen et al., 2009). In this study, instructors such as T01 and T05 drew attention to online student-student interactions. Students, particularly women, enjoy the opportunity to socialise outside of lectures, according to participant T01. Blended learning environments are designed based on the assumption that an internet-based facility will foster student-student interactions and student-content interactions (Moore, 1989). Active students should have a high level of interaction with content and with peers, and online applications such as discussion forums and emails are widely used to facilitate this (Bento & Schuster, 2003; Hillman et al., 1994; Moore & Kearsley, 1996; Pannitz, 1996; Wagner, 2006; Yuen et al., 2009). In this study, students reported lesser use of discussion facilities, as UQU instructor websites lacked interactivity features that allowed students to use these platforms to interact and share ideas (Section 2.5), thus participant students rated such features less useful than their instructors' website content or features. Few instructors reported on student-student interaction, however participant T01 (Section 6.3.3) noticed an increase in student interaction and that the course website was being used to exchange experiences and link this with the course content and that this provided a valuable learning experience, particularly for women. Further, their increased communication encouraged the men to join the course discussion.

7.4 Pedagogy of Blended Learning

The findings of this study are that students and instructors at UQU are in agreement of the usefulness of blended learning environments. Several advantages were noted, including the potential to enhance access to learning through increased flexibility. Study participants reported that the quantity and quality of their communication and interactions were improved in a blended learning environment, although the pedagogical approach was new to UQU and there were limitations to the faculty members' ability to fully utilise its inherent advantages. This section discusses the influences of blended learning design on teaching and learning, as another objective of this study.

In the campus-based university learning environment, teaching (and learning) traditionally follow the didactic approach in which lecturing predominates (Graham et al., 2005). This approach is supported by several functional factors, including limited class duration, class size, location-specific delivery and frequently inadequate resources prevent instructors from utilising innovative teaching strategies. This is especially true in the Saudi context (Section 2.5). In blended learning courses, online instructional components increase the opportunity for introducing other curriculum delivery strategies. The principle that supports a blended learning system is that there is a careful redesign of the curriculum so that it comprises the best of both online and face-to-face learning environments to promote active learning (Garrison & Vaughan, 2008; Lin, Q., 2009). Among several advantages of blended learning delivery, Graham (2006) indicates that there is a common potential for improving pedagogical practices. Lin, Q. (2009) stated that research reveals that students in blended learning courses have improved learning outcomes as well as higher engagement and participation in learning activities.

The traditional Saudi education system including that for tertiary studies was a teacher-centred pedagogy (Oyaid, 2009). In recent years, the Ministry of Higher Education explored blended learning approaches for university environments to improve instructor performance and to meet the national demand (Section 2.5.2; Alebaikan, 2010; Al-Khalifa, 2010). Oyaid (2009) argued that, with the incorporation of ICT into Saudi education, the traditional didactic pedagogy needs to be changed to reflect the opportunities inherent in blending lectures with the media resources of the

internet to offer students a greater role in shaping their learning experiences. This calls for fundamental change for instructors in their work practices and knowledge, and students in their objectives of gaining their qualifications.

In this study, blended learning environments involve the use of instructor websites as a means of improving learning outcomes at UQU. Due to the Ministry of Higher Education's strategy to improve the quantity and quality of graduates, blended learning is becoming the selected pedagogy for Saudi universities. Whilst blended learning is being established, it is in the Ministry's interest to identify good practice and gain efficiencies by developing a coordinated and flexible plan for universities to adapt to gain quality outcomes from the paths and variables associated with blended learning. This study can contribute to planning through its exploration of instructors' and students' views and experiences in participating in a blended learning environment at UQU. In particular, the following sections will provide insight into the effects of blended learning course delivery on learning and teaching.

7.4.1 Students' Attitudes

Students in this study reported that the use of their instructor websites influenced their learning experiences. Results in Table 5.11, Learning Experiences, show that the majority of students agreed on at least seven effects on their learning experiences through access to their instructor websites. The factor with the highest influence according to the data was an increase in learning flexibility external to the lecture hall ($m = 3.15$, $sd = 0.697$). This was followed by improvement in student understanding using a range of attractive resources ($m = 3.08$, $sd = 0.802$). The students also appreciated website usage for revision of previously learned materials as these were accessible online.

Students confirmed these reports in the qualitative data. In response to open ended questions, students reported that the use of websites in this study improved their understanding (44 comments), allowed them to follow the curriculum (28 comments), and facilitated their preparation for class (25 comments). Although few (4 comments), some students reported that the use of blended learning design promoted the concept of self-directed learning. Although in its initial stages as a pedagogical paradigm, and with issues to overcome, students in this study appeared satisfied about their learning experiences (Graham, 2006; Lin, Q., 2009; So & Brush, 2008).

A review of the literature reveals that to be effective, learning environments must be interactive. Further, a blended learning course delivery should be considered as a redesign of learning environments that promote active learning and improve engagements (Garrison & Vaughan, 2008). Graham et al. (2005) explained that an effective implementation of blended learning designs can improve teaching and learning in a way that allow instructors to promote active learning, shift to a learner-centred focus, promote peer exchange, manage time effectively, and allow remote peer review or expert review. Moreover, Dziuban et al. (2004) concluded that the effective integration of online and face-to-face pedagogical strategies in blended courses can enhance students' learning outcomes.

In this study, however, there was a limited effect of blended learning on pedagogy, which may have illustrated the Saudi instructors' lack of technical and pedagogical skills necessary to design an effective blended learning curriculum. Alebaikan (2010) noted that inadequacy in online teaching skills in Saudi Arabia is a barrier to effective blended learning outcomes. Therefore, findings in this study are inconsistent with other researchers who have reported that a blended learning course delivery has effect on student engagement with their course activities as well as influence on student achievement.

For the effects of gender on students' perceptions of instructor websites as an online component of blended learning, male and female students in this study differed in their responses to their learning environments; thus women participants reported greater usefulness of blended learning than their male student counterparts. Female students also reported more effective communication and interaction with their instructors through website usage. This section discusses the gender differences in student attitudes to their instructors' websites.

Results in Table 5.17 Gender Comparison, Learning Experiences illustrate that female students had higher mean scores in all statements than male students, resulting in m. 3.13, sd. 0.449; and m. 2.90, sd. 0.529, respectively. An independent-samples t-test was conducted to examine the significance of the mean differences. The results were that the differences were significant with ($t(340) = -4.202$, $p = .000$). This finding indicates that female students reported greater influence of their instructor websites on their learning experiences than did male students. Male and female students in this study have almost the same ranking of learning influences variables. Arguably, the

novelty of a male instructor in a blended learning course delivery can have more influence on female students' learning experiences. However, male students reported the effect of their instructor websites on their achievement as the second highest variable, while female students placed achievement in fifth place.

The study findings are consistent with other Saudi studies, including Alebaikan (2010) and Alaugab (2007) who emphasised the compatibility of blended learning in the unique Saudi culture, especially in regard to the many issues related to women in a gender segregated society. Alebaikan argued that blended learning approaches can provide female Saudi students more flexibility to continue higher education and gain useful qualifications.

7.4.2 Instructors' Positions

The instructors in this study were encouraged to employ online applications and content to supplement and enhance their face-to-face course delivery, due to issues including gender and overcrowding. Lin, Q. (2009) indicated that instructors in blended learning environments were usually in a position to accomplish their learning objectives successfully, and improve dialogue with their students. In this study, the instructors employed asynchronous online support for their face-to-face course delivery to allow greater work flexibility and efficiency. As in an entirely online course, asynchronous communications applications are widely used in blended courses. In emphasising the potential of asynchronous online support to student learning in blended designs, Macdonald (2006, p. 47) stated that "it offers a greater scope for reflection than is possible in face-to-face environments; provides access to wider, more readily updated resources…it can enhance learner engagement and sense of community".

The instructors in this study reported several benefits found from aspects of their websites. As shown in Table 6.3 (Benefits of Instructor Websites), benefits were categorised as teaching, learning, and interactions and communication. This section focuses on the website usage effects on teaching and learning. Given that the instructors in this study developed their own websites, there was thus a relationship between the content and applications on each site, and benefits to curriculum delivery or teaching style. The majority of instructors reported that their websites facilitated the effective use of lecture time, which allowed the introduction of varied delivery strategies, and this

result agrees with Alebaikan (2010). The instructors also noted that the websites improved their resources at hand for further explanation of the subject or point of view.

In saving lecture time, instructors could experiment with learning strategies to improve student engagement and outcomes (Gurol & Akti, 2010). Participant T01, for example, said that this time was invested in more class discussion (Section 6.1.1). The websites were also useful in students' readiness for informed discussion, and participant T06 explained in Section 6.3.2 that the students were informed of key points on the topic and outline material could be placed online; therefore there was time during the lecture to extend discussion and interest on the topic through links to new resources. The instructors were increasing the use of online material and placing their own text and presentations on the website as an additional delivery medium to their lectures and tutorials (Junaidu, 2008). However, they were not confident in moving a part of the actual course online to form an interlinked blended pedagogy; all core material was delivered face-to-face. In this study, the inadequacies of the UQU portal and the services it could deliver, the lack of guidelines on website management, and the lack of training that the instructors receive result in the ambiguity of blended learning policy at UQU.

There were participant instructors who believed that there were a number of students who were not at a stage to use computers. According to participant T03's response in Section 6.3.2, the form of course delivery by the participant remained solely didactic, text on paper and verbal delivery. There were students without home computers who were not computer-literate; the reasons for this ranged from cost of access for their families and the necessity for the student to acquire skills at a time of considerable pressure to perform. Thus for this class, the potential benefits of additional resources and interaction were denied (Bingimlas, 2010).

In relation to the students' learning outcomes, the instructors believed websites had some influence, however, some were uncertain of the quantity or quality of improvement and this concurs with findings of Albalawi, (2007). Those who were positive toward improved outcomes cited the diversity and richness of online materials; with the majority noting the ability to link to relevant sites, so that students could then learn to search for further information, and to use email and discussion board features to compare their work (Al-Khalifa, 2010). Participant instructors such as T01 noted the benefit of providing educational and lecture notes online, stating that it was useful for

students who were unable to attend lectures. This benefit can be confirmed through the students' placement of the lecturer notes as the most useful components of the websites. Participant T02 commented that "the best point is the availability of the educational subject material with its enriching activities. This is a very important point. As far as the students are concerned, the activities in particular are very good as they send me their answers and I return them after correction".

In summary, the outcomes from the use of the instructor websites for students' learning behaviours were mixed. Whilst four respondents reported a positive outcome for students' learning behaviour, the effect reported by the remaining lecturers was that the students were either confused over the change in delivery of the curriculum, or had an inability or disinclination to access the material. The extra activities and the availability of test questions on the websites were positive aspects of the curriculum delivery, however, there were change management issues arising from website use.

7.5 Blended Learning Issues

Barriers that may affect the adoption of blended learning at UQU are discussed at this point, selected from the analysis of data from both students and instructors. As blended learning is in its initial stages of implementation at Saudi universities, students and instructors are confronting challenges from their different perspectives when using online facilities. Evaluation of current practices can assist in exploring these issues and perhaps limitations of blended learning which can lead to an effective blended learning environment in a shorter period of time.

In this study, qualitative and quantitative data were collected regarding issues and perhaps barriers to effective delivery at UQU of blended learning courses. Participant students were asked to indicate their level of agreement about several factors that can affect access to instructor websites at UQU. These factors include the university readiness for online learning applications, the encouragement and support, the quality of online materials, and students' attitude towards online learning. Moreover, the students were offered free expression of their views about any other issues. The instructors, on the other hand, discussed all matters relating to blended learning implementation, usually the online component, during interview.

Introduction of a blended learning pedagogy requires a formal plan including infrastructure, policies, recommended practices, faculty interaction and feedback, and technical support (Garrison & Kanuka, 2004). Students, instructors and administrators need continual updating of the online and physical attendance aspects of blended learning, computers or devices, skills acquisition, effects on course delivery and timetables. There are technological and pedagogical skills involved in blended designs (Graham, 2006; Alebaikan, 2010). The participants in this study raised several issues that prevent UQU from implementing blended learning course delivery, and these are specific to the university management, instructors and the students. While some of these factors related to instructors' online pedagogical skills, others were of a technical nature.

7.5.1 University Factors

Participant students and instructors criticised the lack of ICT infrastructure at the UQU campuses, especially the availability or speed of the internet. Although the instructors have better access to the internet at the university, they were concerned regarding their students' access. While the university was expanding rapidly, technical services were unable to meet the demand and there was a lack of computer availability, including the university intranet and external internet services in many buildings. The instructors reported that their students did not have access to computer laboratories in some cases, as T04 stated at Section 6.4.3. Leaving blended learning delivery aside, internet access should be part of the daily routine for both instructors and students at tertiary institutions. However, students at UQU lack this advantage. Olapiriyakul and Scher (2006, p. 295) explained that a blended learning approach involves substantial technology infrastructure to provide "the backbone of the overall system". At UQU, access to the internet is available at the central library and a few computer laboratories. Further, due to the size of the laboratories, students are sometimes prohibited from access because of training courses or classes. The majority of students in this study indicated that the vastly inadequate resources at UQU were a very real barrier preventing the effective use of their instructors' websites. This issue had the highest mean scores with m. 2.76 and sd. 0.917. The students repeated the same issue when express their concerns in the open ended questions with other hundred comments (see Table 5.19).

The students also found issue with the absence of technical support. Male and female students raised the dual issues of inadequate resources and support, however females added that their on-campus living quarters lacked access to the internet. The instructors were equally concerned regarding these matters. Participant T06 at Section 6.4.3 alluded to the expansion of the university and its inability to sufficiently resource its activities; such as specialists in integrating online learning, whilst participant T04 added that leadership and professional support was also required.

Another factor affecting blended learning pedagogy at UQU is the ambiguity of blended learning policy in Saudi Arabia and the manner of its integration (see Section 2.5.1). Although UQU has a substantial interest in the pedagogy, the university has insufficient government support, especially from the Ministry of Higher Education, to plan and execute the next steps that involve improved commitment and resourcing. Whilst advocating for more online access by its faculty and students, the university is reliant on the commitment and actions of its faculty members to implement a measure with the promise of effective curriculum delivery. There appears, in 2011, to be little leadership by the university in resolving these fundamental issues of resources and skills to improve the outcomes for students at UQU. For example, the university has not changed its policies on students' attendance commitments at the university campuses for lectures. These requirements remain so that any online delivery is extra and not attributed to the students' course requirements. The students claim that the advantages of internet-based course delivery are offset by the lack of recognition for participating in blended course delivery; thus they are focussed on their graduations, and not on the university's procedures. Participant students therefore reported that online activities add to their study load without advantage to their course credits. Further, the instructors require recognition for their added performance and committed faculty members are not rewarded for their students' success, similarly they required more resources and recompense for the additional skills and work involved with blended learning delivery approaches (an example is participant T07, Section 6.4.3)

7.5.2 Instructor Factors

The lecturer is central to learning environments. Garrison and Vaughan (2008) observe that blended learning involves fundamental change to course delivery, including the role of instructor. In a blended course delivery using the internet, the

instructor requires specific pedagogical and technological skills to effectively integrate both online and face-to-face instructions and this requires high curriculum design skills. This research identified several factors related to the instructors that affect the effectiveness of blended learning delivery at UQU. The majority of participant instructors claimed that computer competency was low among some faculty members and that they could not develop online materials. The grounds for this assertion were that online learning was certainly new to Saudi higher education and many instructors were not committed to this approach. For blended learning to be successful, the ministry required substantial resources for faculty training and support to develop this new approach. Further, there was a lack of understanding at ministry level of the conditions at the universities, where the ministry staff have administrative, financial and academic control of public universities. Whilst government policies require online usage, ministry commitment and resources were not effective in this regard (Ramady, 2010).

As noted, instructors may prefer traditional lecture room methods. Participant T06 addressed this issue at Section 6.4.2, saying that a prevalent attitude among the faculty was that the internet was not regarded as an important pedagogical resource. Participant T04 agreed, saying that lecturers with a lifetime of service had not fully considered an alternative delivery option, whilst participant T03 pointed out that many faculty members were near retirement and perhaps had the attitude that the internet was an unnecessary issue at this point of their careers. Further, the majority of interviewees noted that the workload was such that there was insufficient time to design, plan, write, and arrange their websites, then to continually monitor emails and discussion groups; and this concurs with findings of Hussein (2011). This was especially true as the instructors' teaching load would not be reduced, as the websites were considered an informal use of online learning (T06). Participant T04 also asserted that the time taken to establish and maintain individual websites adds to the load of teaching staff. Participant T07 stated that time limitation is an issue, that there was a high workload and insufficient paid time to maintain a website (Mirza, 2009). Interestingly, participant T01 raised a further issue in Section 6.4.2, saying that some instructors were hesitant to place their work online, as they wanted to maintain copyright. As they were employees, it was debateable whether this was a valid position, as the university or the ministry would be expected to own this material.

Insufficient recompense for their time and effort was of concern to dedicated instructors who worked to give their students an online experience, as it was for the students themselves, who mentioned the lack of commitment of their instructors to access online material or contribute to a class debate. The students pointed out that the majority of course websites were not interactive and that they merely gave course information. There were other concerns including technical issues and poor construction of content. While these points can be due to the instructor's lack of skill, faculty motivation was affected by insufficient reward (Mirza, 2009). Further, the nature of the faculty affects online access, as interviewees stated that instructors in the scientific disciplines have greater appreciation and familiarity of the use of technology in their courses. According to participant T07, the theology and literature faculties did not have ICT information or training.

7.5.3 Student Factors

Of similar importance to issues concerning the university and instructors, this study identified student matters that can influence their access of instructor websites. Students and instructors in this study had different views about the main issues. While the instructors reported some limitations to students' online skills and access, students' responses generally placed different values to the issues.

The majority of the participant instructors (T03, T04, T05, and T06) reported that students' computer literacy was the major issue affecting use of the instructor websites. Participant T06 observed that a few students had no idea how to use a computer, and that others were embarrassed to show their skills levels in front of the class. Similarly, participant T05 noted that students generally had a superficial understanding of the internet, were indecisive, and found the work difficult. Participant T03 also noted the students' level of ICT competency, saying that students required a fundamental knowledge of ICT and the internet as a resource; some students did not have access to a computer at home. On the last point, some students lived in rural areas where there was no internet service or in accommodation without access to the internet, such as the female students' at UQU (Section 6.4.1). Notably, participant T01 asserted that there was also a social issue regarding the internet, as conservative Saudi families did not have computers at home, or allow their daughters internet access. Lastly, interviewees pointed out that some students were not motivated to make use of or

contribute to the websites; participant T03 claimed that these students are not motivated by the educational system to view the internet as a source of information and interaction.

However, Table 5.13 (Issues Impeding Access) shows that participant students do not agree that computer literacy is an issue for accessing their instructor websites. The students present a reasonable computer and internet competency in Table 5.7 (ICT Competencies). Further, although internet access was a long-standing issue for online learning in Saudi Arabia, in this study over 80 per cent of students reported that they have access to the internet at home. The major issues according to the students in this study were the lack of ICT infrastructure at UQU, lack of encouragement and recompense, and the limitation in online content and functions of the instructor websites.

7.6 Summary

This discussion chapter compares the experiences of faculty and students at Umm Al-Qura University in Makkah, Saudi Arabia in their introduction to a blended learning environment, in particular, the attraction and benefit of using faculty members' websites. This thesis explores the extrinsic and intrinsic factors of the university in meeting the objectives of the Saudi National Development Plan, whereby the Ministry of Higher Education directs the universities to increase their use of ICT.

There were several benefits in blended learning course delivery identified by the respondents. As a supplementary instructional resource, instructor websites were seen to enhance course delivery, and offered flexibility, cost-effectiveness, and practice in using technology. Instructor participants reported that their websites enhanced teaching, learning, and communication and interaction in their courses. Student participants were positive about online educational materials and activities, and were particularly interested in the flexibility offered for remote access of course content and information.

Of importance to both participant groups, the blended learning approach offered communication and interaction with the instructor, and potentially, between class members. The findings were that students were positive regarding interaction with their instructors, with female students in particular, as they could access similar information and assistance through email to their male instructors as the male students. Student

participants also considered collaboration and sharing ideas with class as close in value to contacting instructors. However, whilst few instructor websites offered students the ability to contribute to online materials, this was not taken up to any degree as students did not perceive it as useful as other website features such as lecture notes.

The faculty participants were concerned regarding inadequate communication with their students as they recognised a heavy course workload, and individual communication opportunities were rare during lecture attendances. Therefore, they were encouraged to develop their websites. The website advantages of remote access to supplementary course material, opportunities for students to review lecture notes, or perhaps catch up on missed coursework were important attributes of the blended learning approach and would play a significant role in the future. A finding for this research is that websites enhance communication and interaction between students and their instructors.

A finding of this study is that students and instructors agreed that the websites offered learning flexibility. In this study, instructors used asynchronous online support to enhance their face-to-face lectures for greater work flexibility and efficiency. Placing subsequent lecture material on the website facilitated effective use of lecture time, which allowed the instructors flexibility to introduce varied delivery strategies.

However, the outcomes from students' use of instructor websites were mixed. Whilst a minority of respondents reported a positive outcome for students' learning behaviour, the small majority did not consider that student behaviour had changed to any degree. Online activities and test questions were positive aspects of the curriculum delivery, however, there were change management issues arising from website use. Due to UQU's rapid expansion, ICT services were unable to meet the demand and students may not have access to computers, which should be part of their daily routine. There were statements made regarding low student and instructor computer literacy, although 80 per cent of students had internet access at home and they graded well on computer literacy in this study. Further, there was a lack of understanding at ministry level of the conditions at the university, and ministry commitment and resources were not effective.

Therefore, the issues relating to instructor websites for UQU can be summarised as low motivation of students to make use of online materials. This unenthusiastic approach is attributed to the quality of the instructor websites, university management

commitment to assist their instructors improve their online presence. Interestingly, when a comparison is made between male and female students' perceptions of the issues, male students have higher mean scores than female students. As the use of instructor websites was more meaningful for female students, this finding confirms that the main issue with students is their motivation.

The university requires substantial investment and commitment to change to implement blended learning effectively, decision making, policies and practices, administrative and pedagogical systems, curricula, and infrastructure and facilities. Whilst no allowances for instructor training or class times were permitted for the first stage of online learning support, there remains the opportunity for the university to gain from these first tentative steps to blended learning.

Chapter 8 Conclusion

This research investigates the views and experiences of the instructors and students at Umm Al-Qura University (UQU) in Makkah, Saudi Arabia as they explore the use of instructor websites as a supplement to face-to-face delivery of the various curricula in the different faculties. Information and communications technologies (ICT) have a relatively short history in the country, and social norms and deep religiosity affect the Saudis' acceptance of fundamental change, particularly in the highly structured education system. In this study, the pace of change was imposed on Saudi Arabia by the government's massive modernisation programs and the need for the future accommodation and employment of some seven million children under the age of 15 years who will require skills and knowledge to compete in the global job markets.

The previous chapter presents an in-depth discussion of the findings of this thesis. It encapsulates the purpose of this study, which is to examine the perspectives of instructors and undergraduate students at Umm Al-Qura University (UQU) towards blended learning. An objective is to examine the benefit of implementing blended learning on interactions and communications between students and instructors; and therefore the influence on teaching and learning quality. This chapter presents the conclusion of this research. It begins with a summary of the outcomes for each chapter; followed by the conclusions from the research and recommendations for implementing blended learning in Saudi higher education. The chapter also highlights the main strengths and limitations of this study and ends with suggestions for further relevant research.

8.1 Summary of Study

The study began with an introduction, explanation of the study's purpose, its aims, its theoretical framework, and the procedures to be undertaken for the primary research. The growing use of information and communications technologies (ICT), particularly the internet, was the catalyst for the paradigm change in instruction. In this study, UQU met its commitments to government decrees for ICT integration by providing space on its portal for individual faculty members to construct their own

websites containing course administration, information, tests, lecturer contact, and discussion boards. The study concerned the experiences of the instructors and the students and their views on the advantages of accessing and interacting with the site as part of the pedagogical paradigm shift. At the preliminary stage of this shift, the website's content supplemented the lecture attendance requirements, and no time adjustments were made during each course for website construction or use.

The study therefore investigates the preliminary user experiences in blended learning environments, the benefits and challenges of this form of curriculum delivery on the communications and interactions between students and instructors; on teaching and learning experiences; on the separate experiences of male and female students. The research seeks website adoption factors that lead to improved quality of interactions, teaching, and learning at Saudi universities. The main research question was: How do instructors and undergraduate students at UQU perceive the implementation of blended learning? There were six secondary research questions that guide this study.

Q1: How useful do instructors and their undergraduate students at UQU find blended learning environments?

Q2: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the instructor and student interactions?

Q3: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the learning quality?

Q4: How do instructors and their undergraduate students at UQU perceive the influence of blended learning on the teaching quality?

Q5: How do male and female students differ in their perceptions of blended learning at UQU?

Q6: What are the factors that affect the adoption of blended learning at UQU?

The context chapter, Chapter 2, presented the antecedents and the characteristics of the education system in the Kingdom of Saudi Arabia. From the mid-20th century, oil revenues provided the resources and the international community the impetus, to educate the population (Albalawi, 2007). Succeeding five-year socio-economic plans guided the population growth and development of the later part of the century, including education, which is free to all citizens. However, graduates from the new universities

were educated for public service to provide administrators for health, education, planning and housing, with little need for the professions, as economic development was provided by contractors who supplied offshore labour and management. This concentration of graduates rapidly resulted in public sector over-staffing, as Saudis preferred the generous conditions of a life career in public service.

With ever-increasing numbers of graduates from the arts, religion and philosophy faculties, the Ministry of Higher Education and the universities were tasked with resolving the dilemma of graduates that were unable to meet employment criteria. To engage with the problem, traditional teaching methods were set aside in favour of the student-centric approach to education, reflecting global pedagogical practices (Al-Aqeel, 2005). Confronted with admissions to universities that increased three-fold in just five years and to provide those graduates with job skills, the ministry established new universities based solely on professional faculties, health, engineering, ICT, and management (Ministry of Higher Education, 2010a). Further, blended learning has emerged as the means by which this massive expansion in education may be accomplished.

As the primary university in the Holy City of Makkah, the challenge for UQU was thus to meet the Ministry of Higher Education's directives for modernisation. Alebaikan and Troudi (2010a) reported the new curriculum delivery performance criteria, that faculty must identify the optimum design in a blended approach, that students in blended courses require a high level of discipline and responsiveness, and that there is a time issue in skills acquisition, planning, and execution of blended learning. This was the challenge for UQU, and it was the university's response that this study investigated.

The literature chapter, Chapter 3, reviewed relevant theory and empirical studies on pedagogy and the emerging use of ICT. The influences of the 20th century theorists Astin (1999), Bandura (1977), Biggs (1987), Inhelder and Piaget (1958), and Vygotsky (1978) proposed that learning takes place in a social environment, with the individual using behavioural, cognitive, and social influences to explore the world. For Coleman et al. (1966), the value of study for higher education was in the longer term, in identifying inputs and processes, rather than showing immediate results, which questions testing and memorisation as the criteria of a qualification.

Information and communications technologies appeared early in higher education, as researchers explored the nature, applications, and processes of the media. Moore's (1989) interaction precepts of student engagement, that is, learner-content, learner-instructor, and learner-learner, underpinned ICT issues, especially those relevant to Saudi Arabia. Alebaikan and Troudi (2010b), Al-Sobhi et al. (2010), Ibrahim et al. (2007), and Bui (2002) were among the commentators who raised the perennial Saudi issues for blended learning such as the state of ICT infrastructure and support, curriculum presentation, competency with learning procedures such as online discussions, and demands on users' time. However, Simsim (2011) noted the strong growth of mobile communications devices and mobile applications by young Saudis, which suggests that the current ICT status at UQU may lag student practices. This study's findings from the literature review are that ICT is now ubiquitous and faculty members must use the internet to deliver adequate services to their students. Further, the literature results show that in general students are satisfied with a blended online learning system (Knight, 2010; Sharma et al., 2010; Wessels et al., 2007; Yuen et al., 2009).

The methodology chapter, 4, moved on to the primary research and its design. In this research, a mixed methods design was selected, where quantitative and qualitative data were collected and analysed to determine the different perspectives of faculty and students. From the UQU portal, optimum faculty websites were identified through a checklist procedure, and these website users resulted in the sample of nine faculty member participants and 344 students participants who submitted valid questionnaires; a 64 per cent response rate. To answer the research questions, a questionnaire was constructed from the literature to collect quantitative data. Based on the research problem, qualitative data was collected from the faculty participants using semi-structured interviews. The research processes in both data series were subjected to validity and reliability testing, and all data indicators were found to be valid, and within mixed method analysis parameters. The quantitative data were collected and subjected to analysis through statistical software, whilst the data were analysed for themes relating to website objectives, usage, advantages, and issues.

The quantitative analysis findings, Chapter 5, first profiled the student sample. There was a slight bias toward male students and considerable bias towards fourth-year students, the latter mitigated by the argument that such students should have more

experience with instructor websites. Eight different faculties were represented, although the social sciences and education-based disciplines predominated. Study participants were generally full-time students living close to their campus, although 20 per cent travelled more than a half-hour and could potentially benefit from online access to the instructor's website. Participants reported good or excellent basic computer skills, although only one-third of respondents reported confidence in their ICT skills, and 20 per cent did not have a computer at home. Of concern, over 40 per cent of respondents rarely or never accessed their instructors' websites; whilst the remainder checked weekly or more frequently. Nevertheless, the students found the websites useful, particularly for access to their instructors, and for lecture material and course information. Perceived obstacles to website access were inadequate ICT infrastructure, resources, and technical support; and instructors' lack of encouragement for website usage. Women participants found the websites useful, and their evaluations of information, resources, communications, and interaction were higher than their male counterparts. Male participants reported higher barriers than female students to website access. Open-ended questions in the student questionnaires allowed respondents to comment on their experiences, the flexibility and ease of access to course materials was appreciated, however, the university was viewed as unable to support the blended learning online function to an expected standard.

The qualitative results, Chapter 6, were obtained by analysis of data from the instructors who were interviewed based on the research problem. Four main themes emerged for blended learning delivery, objectives, utilisation, benefits, and issues. The results for the first theme, objectives, were that the websites were useful and would eventually become part of curricula delivery. For the university's social contract, the websites offered a means of educating the rising numbers of undergraduates; policy objectives should therefore comprise using the websites for productivity; time-efficiency; enriched lecture experiences; better communication with students, especially women; and to explore other teaching strategies. The participants considered their websites were current and highly relevant, using the communications features for updating course information, and taking questions to fully explaining the course material. The websites facilitated intercommunications within the class cohort, so that students could explore paths of learning. The second theme, website usage, included notices of lecture topics through notes and questions; the summarised lecture notes were

then available for revision or for students who had missed the lecture. The students used the websites for contact with lecturers and other students, and they could enter into a dialogue on the topic. There was also resistance to change in pedagogy and ICT in general from instructors nearing retirement who had no training in website use, and from certain faculty members, such as literature and religion. Others lacked time for preparation or cited copyright restraints in publishing their material online; the accuracy of the latter point is questioned herein. This study's finding is that the university was not sufficiently proactive in incorporating blended learning design into the curricula.

Chapter 7 presented a discussion of the results. Overall, the findings were positive and the participants accepted the instructor websites on the basis that some form of online tuition would be inevitable, and that the instructor websites were useful for regulating communication, information, and administration. In their current form as a supplementary instructional resource, instructor websites were seen to enhance course delivery, and offered online resources, flexibility in delivery, and a class communication system. Students found the online educational materials and activities useful, as were remote access of course information and content. Both groups were particularly appreciative of communication and interaction with the instructor, and in some instances, between class members. Female students could achieve some equity of access to male instructors, which they found particularly valuable; and all students considered useful collaboration and sharing ideas with class. However, whilst few instructor websites offered students the ability to contribute to online materials, students did not find it useful and did not contribute. Nevertheless, a finding for this research is that websites enhance communication and interaction between students and their instructors. A majority of all participants agreed that the online component of blended curriculum delivery offered learning flexibility, enhanced the quality of lecture times, and allowing greater interactions during lectures.

The student outcomes were mixed, with a minority of respondents reporting a positive result for students' learning behaviour and a small majority considering otherwise. There were also resource and computer literacy issues arising from website use, although 80 per cent of students had internet access at home and they graded well on computer literacy in this study. Of concern, there was low motivation among students to use the online resource, although they appreciated access and

communication, attributed to the quality of the instructor websites and university management commitment.

8.2 Conclusions and Recommendations

This section is brings the thesis' findings and discussions into its conclusions and recommendations. The conclusions are presented first, to meet the needs of the literature and a rigorous evaluation of the study findings. The recommendations follow, as suggestions to the Ministry of Higher Education and UQU regarding the progress of blended learning in curricula delivery.

8.2.1 Conclusions

Blended learning approaches can deliver quality learning experiences in higher education (Allan, 2007; Garrison & Vaughan, 2008). However, opinion is divided regarding online approaches in the curricula (Anderson, 2008; Garrison & Kanuka, 2004). Alebaikan (2010) states there are insufficient definitions of blended learning with universities in Saudi Arabia. Universities such as UQU place blended learning as supplementary to attendance at the university. However, students and instructors in this study agree that blended learning is nevertheless useful, and this agrees with the literature (Fox, 2002; Garrison & Vaughan, 2008; Graham et al.. 2005; Hatch et al.. 2004; Holley & Oliver, 2010; Iqbal et al., 2011). This study broadly agrees with Leung and Ivy (2003) regarding students' use of course information, Susskind (2008) regarding course presentations online, and the overall advantages of blended learning concur with Graham (2006), Garrison and Vaughan (2008), and Kali et al. (2009). On the gender issue, Mirza's (2008) findings that women students regarded ICT inadequacies in claiming the lecturer's attention a barrier to communication was not supported, as the women students in this study appreciated this form of communication, and appeared to enjoy the flexibility in emailing the lecturer after attendances at the university.

Alebaikan's (2010) observation that faculty require more skills in relation to pedagogical and online instructional designs to implement blended learning effectively is supported. Faculty respondents in this study indicated that the use of their websites enhanced teaching, learning, interactions and communications in their courses, in agreement with findings from Bonk et al. (2006) and Vaughan (2007). For

communication aspects of blended learning course delivery, findings show that instructors were concerned about the limitations in student access to their lecturers, and increased contact was an objective for the course website. This was in broad agreement with research, namely Graham (2006), and Garrison and Vaughan (2008). However there was some disparity between the participants in this study. Instructors considered their websites as current and relevant (Section 6.1.2), whilst students commented on the standard of the websites, stating the need to develop website contents adequately and that websites should provide an effective online record of the lectures (Section 7.2.1). Forty per cent of students rarely or never accessed their instructor's website (Section 5.7). There was the admission also by the instructors that sections of their faculty were hesitant regarding ICT use (Section 6.4.2). Further, instructors believed that websites facilitated interactions and communications within the class cohort, so that students could explore paths of learning (Section 6.1.3). However, there was lesser impact in relation to student-student and student-content interactions. Students at Section 5.4.4 ranked class interaction at 6th and 7th, well under access to the instructors. It can be said that this finding is a result of the limitation of instructor websites' designs and functions, which lacked the advantage of enabling students to contribute to the course content and share ideas with their classmates (see Section 4.2.2); whereas Garrison and Vaughan (2008) emphasised this ability in blended learning design.

The conclusions of this study are therefore that blended learning system has the potential to play a part in increasing the efficiency of higher education in Saudi Arabia in terms of quality and capacity. In particular, blended learning approaches can enhance interactions and communications between students and instructor in Saudi universities, which eventually would enhance teaching and learning. The study further concludes that blended learning designs are more meaningful and appreciated by female students; especially those who taught by a male instructor. Other advantages of blended learning are well documented. The issues at UQU found in this study regarding the blended learning design appear to be resource-based, although attitude was of concern, with older instructors and those from certain faculties appearing less flexible towards change. The students also appear to have resource-based concerns, that is, access and computer literacy, however, the rapid appearance of mobile devices in the country may overcome lack of computers at home. However, there are two fundamental constraints, gender division and perhaps allied with this, parental attitudes towards the internet. Both these

barriers may be addressed with time and the conservative Islamic sector coming to accept the new technology, as they have to come to terms with the new Saudi urban society. Thus it is the responsibility of the Ministry of Higher Education and the university to accelerate the implementation of a more complex interpretation of blended learning, supporting this by adequate resources, clear policy, and instructor training, and monitoring blended courses to maintain adequate standards of presentation, applications and content. This study demonstrates that blended learning systems have the potential to empower higher education in Saudi Arabia, if designed and implemented with expertise.

8.2.2 Recommendations

Recommendations from this empirical study relate to structure and resource allocation, directed to the Ministry of Higher Education, and procedural and resource applications, directed to UQU. These are addressed in turn.

Ministry of Higher Education

Theoretical and empirical evidence, including this study, point to blended learning curriculum delivery as an efficient and successful means to a quality education for increasing student numbers. There are also matters of student access that this approach can help to resolve.

In collaboration with Saudi university academic and administrative boards, the Ministry of Higher Education should formulate an overarching policy on curriculum delivery using ICT, complete with a flexible framework of implementation stages that are based on a blended learning approach. A clear framework such as this enables measurement and monitoring of university expenditure, application, and outcomes to gauge where future resources and training are to be deployed. As part of this program, an assessment is necessary of the current situation of blended learning curricula delivery in all Saudi universities; factors include such matters as university capacity, women students' access to male instructors, disabled students, and those from remote locations. These data, and international studies, can inform the ministry's study.

As the Saudi government aims to promote computer literacy for the population, there is continuing need to resource and promote training in the education sector, academic and administration, to exploit the considerable resources that the government commits to ICT in the sector. This is important for two reasons, that the university's

role of building community capacity and leadership requires a proactive approach to ICT in education; and that faculty members remain cognisant of their students' interests, can relate to their experiences, and guide their knowledge.

Umm Al-Qura University

Blended learning is an approach to curriculum delivery that is barely practised at UQU. Whilst the university has a clear mission to leadership in graduating competent professionals, there is disconnection between the delivery and the outcomes. In this study, students were attracted to ICT applications and online communication and information. However, there was a lack of the integration of online and face-to-face instructions in the individual instructor websites at UQU. This study found 40 per cent of students uninterested, and all students lacked the inclination to enter into course discussions.

The first recommendation is that UQU should direct more attention to the quality of online learning environments. There is a need for official and effective learning management systems such as Blackboard and WebCT. The university should offer training programs that enhance instructors' skills of online instructional designs, especially blended designs. The instructors should have sufficient knowledge in how to develop online content, presentation, and monitoring of activity online. This is of equal importance to classroom-based knowledge guidance for students.

The second recommendation is that UQU needs to develop an action plan for blended learning, based on the university objectives, challenges, and capabilities. The university should consider the implementation of blended learning delivery as a transformative approach towards more effective and efficient performance. The university should increase the awareness of blended learning amongst students and faculty members as well as administration to facilitate implementation. A clear definition of blended learning or blended courses is essential. This includes the commitments and advantages for instructors and students when participate in a blended course.

The third recommendation is that UQU should employ blended learning delivery in a way that solves special issues that emerge in the *Hajj* season, where students and instructors experience traffic difficulty in certain time. The flexibility and diversity of blended learning designs can allow more online access to the university at this time.

8.3 Strengths of the Study

This study investigates a new learning approach at Saudi higher education, blended learning. Although many studies examined blended learning designs in higher education around the globe, there is a lack of such studies as blended learning is in its early stage at the Saudi university environment. This study is assumed to contribute to the development of action plan for blended learning in Saudi Arabia. An advantage of the study is that it adds to the literature on blended learning curriculum delivery by identifying research issues such as definition and standardisation in research; that is, the majority of the literature tends to be specific to time and procedure to the point of lacking correlation. In this case, the breadth of the study reaches to pedagogical principles, adoption of technology, and social change.

Further, this study is inclusive, taking a differentiated and disadvantaged population sector to illustrate the extrapolation of the blended learning approach to address education delivery to isolated community sectors. These students may be disabled, in remote locations, or merely lack the time for university attendance due to work or family commitments. The blended learning approach could also be appropriate for life-long learning, following Garrison and Vaughan's (2008) deliberations.

This study involves the perspectives of both students and faculty members at UQU. The sample includes male instructors with their male and female students, in which female students have no physical interactions with their instructors. This study is the first study investigating the effectiveness of blended learning delivery in gender segregated learning environment. Blended learning in this study involves the use of individual instructor websites, which have been developed to supplement their face-to-face instructions. However, such implementation has not affected the students and instructors classroom attendances. It was an activity-level blend.

8.4 Limitations of the study

The limitations of this study are bound by time and place. This research was undertaken in the initial stages of adoption by UQU administration of an ICT approach to curriculum delivery in their response to government requirements. At the time,

computers were still something of a novelty in many sections of Saudi society, and wireless devices were just making an impact; growth of online access for Saudis is now amongst the world's fastest. Thus, for all Saudi universities resources improve, competencies grow, and attitudes change. The limitations to this study are therefore embodied in the pace of ICT change, which also underlies this thesis; the self-selection of the participants, who may or may not reflect the body of opinion at UQU. Further, data generated in this study are mainly self-report data, although from different perspectives.

8.5 Future Research

Research opportunities in blended learning and related matters will surely emerge from this point of time. To ground the principles involved, empirical studies by country and by region are required to determine the median balance between attendance and online course or curriculum delivery. 'Best practice' appears not to be a universal concept, as it is based on certain social norms and standards. Successful strategies can be identified and validated for different regions and purposes to form a framework of good practices across the world. Other research designs such as evaluation or experimental studies will provide more evidence of the strengths and limitations of blended learning delivery in the Saudi context. Future research may involve the views of the policy-makers and administrations in the Saudi universities, as important elements of blended learning implementations.

References

Abalhassan, K. (2007). *Higher education in Saudi Arabia 2007*. Riyadh: Ministry of Higher Education, King Saud University.

Abanmie, A. (2002). *Attitude of high school students in Saudi Arabia toward computers.* Unpublished PhD dissertation, Mississippi State University, Starkville, MS.

Abanumy, A., & Mayhew, P. (2005). *M-government implications for e-government in developing countries: the case of Saudi Arabia.* Working paper, East Anglia University. Accessed 9 April 2011 from http://unpan1.un.org/intradoc/groups/public/documents/unpan/unpan033540.pdf

Abdulwasa, A. A. (2002). *Education in the Kingdom of Saudi Arabia: between reality and hopes.* (In Arabic) Jeddah, KSA: Arab Book House.

Ajzen, I. (1985). From intentions to actions: a theory of planned behaviour. In J. Kuhland, & J. Beckman (Eds.), *Action-control: from cognitions to behaviour*, Heidelberg, Germany: Springer.

Al-Aqeel, A. A. (2005). *Education policy in the Kingdom of Saudi Arabia*. (In Arabic) Riyadh, KSA: Al-Roashd Library.

Al-Arfaj, A. H. (2001). *The perception of college students in Saudi Arabia towards distance web-based instruction.* PhD dissertation, Ohio University, Athens, OH.

Alaugab, A. M. (2007). *Benefits, barriers, and attitudes of Saudi female faculty and students towards online learning in higher education*. PhD dissertation, University of Kansas, Lawrence, KS.

Al Awadhi, S., & Morris, A. (2008, 7-10 January). The use of the UTAUT model in the adoption of e-government services in Kuwait. In *Proceedings of the 41st Annual Hawaii International Conference on System Sciences*, Waikoloa, Big Island, HI.

Albalawi, M. S. (2007). *Critical factors related to the implementation of web-based instruction by higher-education faculty at three universities in the Kingdom Of Saudi Arabia*. Dissertation for Doctor of Education, University of West Florida, Pensacola, FL.

Alebaikan, R. (2010). *Perceptions of blended learning in Saudi universities*. Unpublished PhD thesis, University of Exeter, Exeter, England.

Alebaikan, R., & Troudi, S. (2010a). Blended learning in Saudi universities: challenges and perspectives. *Research in Learning Technology, 18*(1), 49-59.

Alebaikan, R., & Troudi, S. (2010b). Online discussion in blended courses at Saudi Universities. *Procedia - Social and Behavioral Sciences, 2*(2), 507-514.

Alferaihi, F. (2003). *The perception of undergraduate students toward utilizing online courses at King Saud University, Riyadh, Saudi Arabia.* Ph.D. dissertation, Ohio University, Athens, OH.

Al-Fulih, K. (2002). *Attributes of the internet perceived by Saudi Arabian faculty as predictors of their internet adoption for academic purposes*. Unpublished PhD

dissertation, Faculty of Education, Ohio University, Athens, OH.

Al-Ghonaim, H. S. (2005). *Attitudes, barriers and incentives of Saudi college instructors and administrators toward implementation of online instruction*. Unpublished PhD dissertation, University of Kansas, Lawrence, KS.

Al-Harbi, K. A. S. (2011). e-Learning in the Saudi tertiary education: potential and challenges. *Applied Computing and Informatics, 9*(1), 31-46.

Alharbi, Y. (2002). *A study of the barriers and attitudes of faculty and administrators towards implementation of online courses*. Unpublished PhD dissertation, University of Northern Colorado, Greeley, CO.

Alhazmi, F. A. (2010). *Job satisfaction among female head teachers in Saudi Arabian secondary schools: a qualitative perspective*. Unpublished PhD thesis, University of Southampton, Southampton, England.

Al-Hugail, S. A. (1998). *System and education policy in Saudi Arabia*. (In Arabic) Riyadh, KSA: Dar al Shroge Press.

Al-Jarf, R. S. 2005. The effects of online grammar instruction on low proficiency EFL language college students' achievement. *The Asian EFL Journal Quarterly, 7*(4), 166-190.

Al-Khalifa, H. S. (2010, March). E-learning and ICT integration in colleges and universities in Saudi Arabia. *eLearn Magazine*. Retrieved 9 May 2011 from http://www.elearnmag.org/subpage.cfm?section=articles&article=115-1.

Alkhazim, M. A. (2003). Higher education in Saudi Arabia: challenges, solutions, and opportunities missed. *Higher Education Policy, 16*(4), 479-486.

Allan, B. (2007). *Blended learning: tools for teaching and training*. London, England: Facet.

Allehaibi, M. M. (2001). *Faculty adoption of internet technology in Saudi Arabian universities*. Unpublished PhD dissertation, School of Information Studies, Florida State University, Tallahassee, FL.

Allen, I., Seaman, J., & Garrett, R. (2007). *Blending in: the extent and promise of blending learning in the United States.* Needham, MA: Sloan Consortium.

Al Lily, A. (2011). On line and under veil: technology-facilitated communication and Saudi female experience within academia. *Technology in Society, 33*(1-2), 119-127.

Almegran, A. (2008). *Most Saudi universities switch to e-learning by next year.* National Centre for E-learning and Distance Learning. Retrieved 15 March 2011 at http://www.elc.edu.sa/portal/index.php?mod=news&apage=3&annID=382

Almegran, A., Al-Yafei, A., & Ahmad, H. (2007, 29-31 October). Pilot nationwide e-learning provision in the Kingdom of Saudi Arabia: issues and challenges. Paper presented at *21st Asian Association of Open Universities' Annual Conference*, Kuala Lumpur, Malaysia.

Almogbel, A. (2002). *Distance education in Saudi Arabia: attitudes and perceived contributions of faculty, students, and administrators in technical colleges.* Unpublished PhD dissertation, University of Pittsburgh, Pittsburgh, PA.

Al-Munajjed, M. (1997). *Women in Saudi Arabia today*. London, England: Macmillan.

Alnujaidi, S. A. (2008). *Factors influencing English language faculty members' adoption and integration of web-based instruction (WBI) in Saudi Arabia*. Unpublished PhD dissertation, University of Kansas, Lawrence, KS.

Al-Rasheed, F. T. (2011, 12 April). Upcoming municipal elections: emergence of reform. *Saudielection.com.* Retrieved 5 May 2011 from http://www.saudielection.com/en/news/117/ARTICLE/2183/2011-04-12.html.

Al-Rasheed, M. (2002). *A history of Saudi Arabia*. Cambridge, England: Cambridge University Press.

Al Rawaf, H. S., & Simmons, C. (1991). The education of women in Saudi Arabia. *Comparative Education, 27*(3), 287–295.

Al-Saggaf, Y. (2004). The effect of online community on offline community in Saudi Arabia. *Electronic Journal of Information Systems in Developing Countries, 16*(2), 1-16.

Al Saif, A. A. (2005, 1 January). *The motivating and inhibiting factors affecting the use of web-based instruction at the University of Qassim in Saudi Arabia.* Paper AAI3168482, ETD Collection for Wayne State University, Detroit, MI**.**

Al-Salem, S. A. (2005). *The impact of the internet on Saudi Arabian EFL females' self-image and social attitudes.* Doctoral dissertation, Department of English, Indiana University of Pennsylvania, Indiana, PA.

Alshankity, Z., & Alshawi, A. (2008, 25-27 May). Gender differences in internet usage among faculty members: the case of Saudi Arabia. Paper presented at the *Conference on Human System Interactions*, Krakow, Poland.

Al-Shohaib, K., Al-Kandari, A. A., & Abdulrahim, M. A. (2009). Internet adoption by Saudi public relations professionals, *Journal of Communication Management, 13*(1), 21-36.

Alshumaimri, A., Aldridge, T., & Audretsch, D. (2010). The university technology transfer revolution in Saudi Arabia. *Journal of Technology Transfer, 35*(6), 585-596.

Al-Sobhi, F., & Weerakkody, V. (2010, 12-13 April). The role of intermediaries in facilitating e-government diffusion in Saudi Arabia. Paper in *Proceedings of the European and Mediterranean Conference on Information Systems*, Abu Dhabi, UAE.

Al-Sobhi, F., Weerakkody, V., & Al-Busaidy, M. (2010, 12-15 August). The roles of intermediaries in the diffusion and adoption of e-government services. Paper 385 presented at *Americas' 2010 Conference on Information Systems*, Lima, Peru.

Al-Sulaimani, A. A. (2010). *The importance of teachers integrating ICT into science teaching in intermediate schools in Saudi Arabia: a mixed methods study*. Unpublished PhD thesis, RMIT University, Melbourne, Vic.

Al-Tawil, K. (2001). The internet in Saudi Arabia. *Telecommunications Policy, 25*(8), 625-632.

Al-Wehaibi, K., Al-Wabil, A., Alshawi, A., & Alshankity, Z. (2008). Barriers to internet adoption among faculty in Saudi Arabian universities. In P. Barker, & S. Rebelsky (Eds.) *Proceedings of World Conference on Educational Multimedia,*

Hypermedia and Telecommunications. Chesapeake, VA: Association for the Advancement of the Computer in Education.

Anderson, T. (Ed.) (2008). *Towards a theory of online learning*. (2nd ed.) Edmonton, AB: AU Press, Athabasca University.

Arbaugh, J., Godfrey, M., Johnson, M., Pollack, B., Niendorf, B., & Wresch, W. (2009). Research in online and blended learning in the business disciplines: key findings and possible future directions, *Internet and Higher Education, 12*(2), 71-87.

Aseeri, A., & Broad, M. J. (2009). *Enablers and limiters of measuring performance: a grounded theory study of Saudi universities*. Discussion paper, University of Southampton, Southampton, England.

Asimov, M., & Bosworth, C. (Eds.) (1998). *History of civilizations of central Asia, vol. IV: the age of achievement: AD 750 to the end of the fifteenth century*. *Part 1: the historical, social and economic setting.* New Delhi, India: Motilal Banarsidass Publishers for UNESCO.

Asiri, A. A. (2009). *Attitudes of students toward e-learning in Arabic language courses: a case study at King Khalid University in Saudi Arabia*. Master's thesis, School of Educational Studies, La Trobe University, Melbourne, Vic.

Astin, A. W. (1999). Student involvement: a developmental theory for higher education, *Journal of College Student Development, 40*(5), 518-529.

Bakhtin, M. M. (1981). *The dialogic imagination: four essays*. Austin, TX: University of Texas Press.

Baki, R. (2004). Gender-segregated education in Saudi Arabia: its impact on social norms and the Saudi labor market. *Education Policy Analysis Archives, 12*(28), 1-12.

Bandura, A. (1977). *Social learning theory*. New York, NY: General Learning Press.

Bento, R., & Schuster, C. (2003). Participation: the online challenge. In A. Aggarwal (Ed.), *Web-based education: learning from experience*. Hershey, PA: Idea Group Publishing.

Bersin, J. (2004). *The blended learning book: best practices, proven methodologies, and lessons learned*. San Francisco, CA: Pfeiffer.

Bichelmeyer, B. (2003). *Checklist for formatting checklists*. Kalamazoo, MI: The Evaluation Center, Western Michigan University.

Biggs, J. B. (1987). *Student approaches to learning and studying*. Research monograph. Hawthorn, Vic: Australian Council for Educational Research.

Bingimlas, K. (2010). *Evaluating the quality of science teachers' practices in ICT-supported learning and teaching environments in Saudi primary schools*. PhD thesis, RMIT University, Melbourne, Vic.

Birisci, S., Metin, M., & Karakas, M. (2009). Prospective elementary teachers' attitudes toward computer and internet use: a sample from Turkey. *World Applied Sciences Journal, 6*(10), 1433-1440.

Boklaschuk, K., & Caisse, K. (2001). *Evaluation of educational web sites*, Retrieved 31 January 2011 from http://www.usask.ca/education/coursework/802papers/bokcaisse/bokcaisse.pdf.

Bolliger, D., Supanakorn, S., & Boggs, C. (2010). Impact of podcasting on student motivation in the online learning environment. *Computers & Education, 55*(2), 714-722.

Bonk, C., & Graham, C. (Eds.) (2006). *The handbook of blended learning: global perspectives, local designs.* San Francisco, CA: John Wiley.

Bonk, C., Kim, K. L., & Zeng, T. (2006). Future directions of blended learning in higher education and workplace learning settings. In C. Bonk, & C. Graham (Eds.), *The handbook of blended learning: global perspectives, local designs*. San Francisco, CA: Pfeiffer.

Bradmore, D. (2007). *Quest of Australian public universities for competitive advantage in a global higher education environment*. PhD thesis, School of Management, RMIT University, Melbourne, Vic.

Brenner, M. E. (2006). Interviewing in educational research. In J. L. Green, G. Camilli, & P. B. Elmore (Eds.), *Handbook of complementary methods in education research*, Mahwah, NJ: Lawrence Erlbaum.

Bryman, A. (2008). *Social research methods* (3rd ed.). Oxford, England: Oxford University Press.

Bryman, A., & Burgess, R. (Eds.) (1994). *Analyzing qualitative data*. London, England: Routledge.

Bui, K. V. T. (2002). First-generation college students at a four-year university: background characteristics, reasons for pursuing higher education, and first year experiences. *College Student Journal, 36*(1), 3-11.

Burns, R. B. (2000). *Introduction to research methods* (4th ed.). Frenchs Forest, NSW: Pearson Education Australia.

Cantor, N. (2010). Universities and communities collaborating on democracy. In S. Bergan, & R. Damian (Eds.), *Higher education for modern societies: competences and values*. Strasbourg, France: Council of Europe.

Carlsson, C., Carlsson, J., Hyvonen, K., Puhakainen, J., & Walden, P. (2006, 4 - 7 January). Adoption of mobile devices/services - searching for answers with the UTAUT. Paper presented at the *Hawaii International Conference on System Sciences,* Kauai, HI.

Central Department of Statistics and Information (2007). *National demographic survey.* Retrieved 18 September 2008 from http://www.cdsi.gov.sa.

Central Department of Statistics and Information (2010). *Facts about the Kingdom*. Retrieved 13 March 2011 from http://www.cdsi.gov.sa/english/index.php?option=com_content&view=article&id=56&Itemid=147.

Chandra, V. (2004). *The impact of a blended web-based learning environment on the perceptions, attitudes and performance of boys and girls in junior science and senior physics*. Unpublished PhD thesis, Curtin University of Technology, Perth, WA.

Chen, W., & Looi, C. K. (2007). Incorporating online discussion in face to face classroom learning: a new blended learning approach. *Australasian Journal of Educational Technology, 23*(3), 307-326.

Choy, S. P. (2002). *Access and persistence: findings from 10 years of longitudinal research on students. Informed practice: syntheses of higher education research for campus leaders*. Washington, DC: American Council on Education Fulfillment Service.

Coleman, J. S., Campbell, E. Q., Hobson, C .J., McPartland, J, Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity,* U.S. Department of Health, Education and Welfare, Washington, DC.

Comey, W. (2009). *Blended learning and the classroom environment: a comparative analysis of students' perception of the classroom environment across community college courses taught in traditional face-to-face, online and blended methods*. Unpublished dissertation for Doctor of Education, George Washington University, Washington, DC.

Communications and Information Technology Commission (2010). *Computer and internet usage in the Kingdom of Saudi Arabia: individuals, business, government, education, health, 2007 – 2009*. Riyadh, KSA: Author.

Communications and Information Technology Commission (2011). *Internet in Saudi Arabia*. Retrieved 13 April 2011 from http://www.internet.gov.sa/learn-the-web/guides/internet-in-saudi-arabia/view?set_language=en.

Concannon, F., Flynn, A., & Campbell, M. (2005). What campus-based students think about the quality and benefits of e-learning. *British Journal of Educational Technology, 36*(3), 501-512.

Coomey, M., & Stephenson, J. (2001). Online learning: it is all about dialogue, involvement, support and control - according to the research. In J. Stephenson (Ed.), *Teaching & learning online: pedagogies for new technologies*. London, England: Kogan Page.

Crawford, K. (1996). Vygotskian approaches in human development in the information era. *Educational Studies in Mathematics, 31*(1), 43-62.

Creswell, J. W. (2008). *Educational research: planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Upper Saddle River, NJ: Pearson Education.

Creswell, J. W. (2009). *Research design: qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Creswell, J. W., & Plano Clark, V. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.

Creswell, J. W., & Tashakkori, A. (2007). Editorial: differing perspectives on mixed methods research. *Journal of Mixed Methods Research, 1*(4), 303-308.

Crotty, M. (1998). *The foundations of social research: meaning and perspective in the research process*. London, England: Sage.

Dale, N. B. (2010, 18-21 January). Textbooks: how we choose them, how we use them, shall we lose them? Paper presented at *Proceedings of the 12th Australasian Conference on Computing Education,* Brisbane, Qld: Australian Computer Society.

Davidson-Shivers, G., & Rasmussen, K. (2006). *Web-based learning: design, implementation, and evaluation.* Boston, MA: Pearson, Allyn & Bacon

Davis, F. D. (1986). *A technology acceptance model for empirically testing new end-user information systems: theory and results*. Doctoral dissertation, Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340.

Davis, F. D., & Venkatesh, V. (1996). A critical assessment of potential measurement biases in the technology acceptance model: three experiments. *International Journal of Human-Computer Studies, 45*(1), 19-45.

Derby, C., & Williams, F. (2010). The impact of problem based learning, blended-problem based learning, and traditional lecture on student's academic achievement in education. In J. Sanchez, & K. Zhang (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2010*. Chesapeake, VA: Association for the Advancement of Computers in Engineering.

Donnelly, R. (2010). Harmonising technology with interaction in blended problem-based learning. *Computers & Education, 54*(2), 350-359.

Doyle, L., Brady, A-M., & Byrne, G. (2009). An overview of mixed methods research. *Journal of Research in Nursing, 14*(2), 175–185.

Draffan, E., & Rainger, P. (2006). A model for the identification of challenges to blended learning. *ALT-J: Research in Learning Technology, 14*(1), 55-67.

Duffy, T., & Cunningham, D. (1996). Constructivism: implications for the design and delivery of instruction. *Context, 171*(4), 170-198.

Dziuban, C., Hartman, J., & Moskal, P. (2004). Blended learning. *Research Bulletin, 7*, 2-12. Boulder, CO: Educause Center for Applied Research.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook 'friends': social capital and college students' use of online social network sites. *Journal of Computer Mediated Communication - Electronic Edition, 12*(4), 1143-1168.

El-Tigi, M. (2001). *Integrating WWW technology into classroom teaching: college students' perceptions of course web sites as an instructional resource.* Doctoral dissertation, Syracuse University, Syracuse, NY.

Eshet-Alkalai, Y. (2004). Digital literacy: a conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia, 13*(1), 93-106.

Evans, C. (2008). The effectiveness of m-learning in the form of podcast revision lectures in higher education, *Computers & Education, 50*(2), 491-498.

Faraj, A. (2005). *Global education systems.* Amman, Jordan: Massira Press.

Field, A. P. (2009). *Discovering statistics using SPSS*, 3rd ed. London, England: Sage.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: an introduction to theory and research*. Reading, MA: Addison-Wesley.

Foerster, von, H. (1984). *Observing systems*. Seaside, CA: Intersystems Publications.

Fox, M. (2002). Keeping the blended promise. *E-learning, 3*(3), 26-29.

Frankola, K. (2001). Why online learners drop out. *Workforce*, *80*(10), 53-58.

Garrison, D., & Anderson, T. (2003). *E-learning in the 21st century: a framework for research and practice.* New York, NY: RoutledgeFalmer.

Garrison, D., & Kanuka, H. (2004). Blended learning: uncovering its transformative potential in higher education. *Internet and Higher Education, 7*(2), 95-105.

Garrison, D., & Vaughan, N. (2008). *Blended learning in higher education: framework, principles, and guidelines*. San Francisco, CA: Jossey-Bass.

Gergen, K. (1994). *Realities and relationships: soundings in social construction.* Cambridge, MA: Harvard University Press.

Gillham, B. (2000). *Case study research methods*. London, England: Continuum.

Glasersfeld, E. von (1995). *Radical constructivism: a way of knowing and learning.* London, England: RoutledgeFalmer.

Gorard, S. (2003). *Quantitative methods in social science*. London, England: Continuum.

Grabe, M., & Christopherson, K. (2008). Optional student use of online lecture resources: resource preferences, performance and lecture attendance. *Journal of Computer Assisted Learning, 24*(1), 1–10.

Graham, C. (2006). Blended learning systems: definition, current trends, and future directions. In C. Bonk, & C. Graham (Eds.), *Handbook of blended learning: global perspectives, local designs*. San Francisco, CA: Pfeiffer.

Graham, C., Allen, S., & Ure, D. (2005). Benefits and challenges of blended learning environments. In M. Khosrow-Pour (Ed.), *Encyclopedia of information science and technology*. Hershey, PA: Idea Group.

Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis, 11*(3), 255-274.

Griffin, T., & Thomson, R. (2008). Evolution of blended learning in a large enrolment subject: what was blended and why? Paper presented at *2008 Conference of Australian Society of Computers in Learning in Tertiary Education*, Deakin University, Melbourne, Vic.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of qualitative research.* Thousand Oaks, CA: Sage.

Guba, E. G., & Lincoln, Y. S. (2004). Competing paradigms in qualitative research. In S. Hesse-Biber, & P. Leavy (Eds.), *Approaches to qualitative research: a reader on theory and practice*. New York, NY: Oxford University Press.

Gurol, A., & Akti, S. (2010). The relationship between pre-service teachers' self-efficacy and their internet self-efficacy, *Procedia - Social and Behavioral Sciences, 2*(2), 3252-3257.

Hatch, T., Bass, R., Iiyoshi, T., & Pointer-Mace, D. (2004). Building knowledge for teaching and learning: the promise of scholarship of teaching in a networked environment. *Change, 36*(5), 42-49.

Hegelheimer, V., & O'Bryan, A. (2009). Mobile technologies, podcasting, and language education. In M. Thomas (Ed.), *Handbook of research on Web 2.0 and second language learning*. Hershey, PA: IGI Global.

Heilesen, S. B. (2010). What is the academic efficacy of podcasting? *Computers & Education*, *55*(3), 1063-1068.

Herring, S. C., Scheidt, L. A., Bonus, S., & Wright, E. (2005). Weblogs as a bridging genre. *Information, Technology and People*, *18*(2), 142–171.

Hillman, D., Willis, D., & Gunawardena, C. (1994). Learner-interface interaction in distance education: an extension of contemporary models and strategies for practitioners. *American Journal of Distance Education 8*(2), 30-42.

Holden, G., Barker, K., Rosenberg, G., & Onghena, P. (2008). The evaluation self-efficacy scale for assessing progress toward CSWE accreditation-related objectives: a replication. *Research on Social Work Practice, 18*(1), 42-46.

Holley, D., & Oliver, M. (2010). Student engagement and blended learning: portraits of risk. *Computers & Education, 54*(3), 693-700.

Hubball, H., & Burt, H. (2007). Learning outcomes and program-level evaluation in a four-year undergraduate pharmacy curriculum, *American Journal of Pharmacy Education*, *71*(5), 90, 1-8.

Hussein, H. B. (2011). Attitudes of Saudi universities faculty members towards using learning management system (JUSUR). *Turkish Online Journal of Educational Technology, 10*(2), 43-53.

Hwang, A., & Arbaugh, J. (2009), Seeking feedback in blended learning: competitive versus cooperative student attitudes and their links to learning outcome. *Journal of Computer Assisted Learning, 25*(3), 280–293.

Hwang, G., Huang, T., & Tseng, J. (2004). A group-decision approach for evaluating educational web sites. *Computers & Education*, *42*(1), 65-86.

Ibrahim, M., Rwegasira, K., & Taher, A. (2007). Institutional factors affecting students' intentions to withdraw from distance learning programs in the Kingdom of Saudi Arabia: the case of the Arab Open University (AOU). *Online Journal of Distance Learning Administration, 10*(2). Retrieved 2 July 2011 from http://www.westga.edu/ %7Edistance/ojdla/spring101/ibrahim101.htm.

Inhelder, B., & Piaget, J. (1958). *The growth of logical thinking: from childhood to adolescence*. A. Parsons, & S. Milgram (Trans.). Reprint 2002. London, England: Basic Books/Routledge & Kegan Paul

International Telecommunications Union (2010). *Information and communication technology*. Retrieved 9 April 2010 from http://www.itu.int/ITU-D/ict/publications/idi/2010/Material/MIS_2010_without_annex_4-e.pdf.

International Telecommunications Union (2011). *Statistics*. Retrieved 25 April 2011 from http://www.itu.int/ITU-D/ict/statistics/index.html.

Iqbal, A., Kokash, H., Al-Oun, S. (2011). The impact assessment of demographic factors on faculty commitment in the Kingdom of Saudi Arabian universities. *Journal of College Teaching & Learning, 8*(2), 1-7.

Iran-Nejad, A., & Stewart, W. (2011, 6-8 April). Understanding knowing and its relation to understanding. Paper presented at *the 6th International Conference of the American Institute of Higher Education*, Charleston, SC.

Irons, L. R., Keel, R., & Bielema, C. L. (2002). Blended learning and learner satisfaction: keys to user acceptance. *United States Distance Learning Journal, 16*(12). Retrieved 18 April 2011 at http://www.usdla.org/html/journal/DEC02_Issue/article04.html.

Jaffe, A., Trajtenberg, M., & Romer, P. (2002). *Patents, citations, and innovations: a window on the knowledge economy.* Cambridge, MA: Massachusetts Institute of Technology.

Johnson, B. & Christensen, L. (2008). *Educational research: quantitative, qualitative, and mixed approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Johnson, R., & Onwuegbuzie, A. (2004). Mixed methods research: a research paradigm whose time has come. *Educational Researcher, 33*(7), 14-26.

Johnson, R., Onwuegbuzie, A., & Turner, L. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research, 1*(2), 112-133.

Jolliffe, A., Ritter, J., & Stevens, D. (2001). *The online learning handbook: developing and using web-based learning.* London, England: Kogan Page.

Jones, N. (2006). E-college Wales, a case study of blended learning. In C. Bonk & C. Graham (Eds.), *The handbook of blended learning: global perspectives, local designs*. San Francisco, CA: Pfeiffer.

Junaidu, S. (2008). Effectiveness of multimedia in learning & teaching data structures online. *Turkish Online Journal of Distance Education, 9*(4/7). Retrieved 15 July 2011 from http://tojde.anadolu.edu.tr/tojde32/articles/article_7.htm

Jung, I., Choi, S., Lim, C., & Leem, J. (2002). Effects of different types of interaction on learning achievement, satisfaction and participation in web-based instruction. *Innovations in Education and Teaching International, 39*(2), 153-162.

Kali, Y., Levin-Peled, R., & Dori, Y. (2007). How can hybrid courses designed with socio-constructivist design-principles promote learning in higher education? In T. Bastiaens & S. Carliner (Eds.), *Proceedings of World Conference on e-Learning in Corporate, Government, Healthcare, and Higher Education* Chesapeake, VA: Association for the Advancement of Computing in Education.

Kasser, A. (2011, 2 February). Saudi Arabia: economic growth expected to expand by 4.3% in 2011. *Global Arab Network*. Retrieved 4 May 2011 from http://www.english.globalarabnetwork.com/201102028852/Economics/saudi-arabia-economic-growth-to-expand-by-43-in-2011.html.

Katz, R. N. (2002). The ICT infrastructure: a driver of change. *Educause Review 37*(4), 50-61.

Keane, D.R., Norman, G.R., & Vickers, J. (2001). Inadequacy of recent research on computer-assisted instruction. *Academic Medicine, 66*(8), 444-448.

Kember, D., McNaught, C., Chong, F., Lam, P., & Cheng, K. (2010). Understanding the ways in which design features of educational websites impact upon student learning outcomes in blended learning environments. *Computers & Education, 55*(3), 1183-1192.

Kemp, P., Myers, C., Campbell, M., & Pratt, A. (2010). Student perceptions and the effectiveness of podcasting in an associate degree nursing program. *Teaching and Learning in Nursing, 5*(3), 111-114.

Kemper, E. A., Stringfield, S., & Teddlie, C. (2003). Mixed methods sampling strategies in social science research. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research*. Thousand Oaks, CA: Sage.

Khan, B. H. (2005). *Managing e-learning: design, delivery, implementation, and evaluation*. Hershey, PA: Information Science.

Knight, J. (2010). Distinguishing the learning approaches adopted by undergraduates in their use of online resources. *Active Learning in Higher Education, 11*(1), 67-76.

Kolb, A. Y., & Kolb. D. A. (2005). Learning styles and learning spaces: enhancing experiential learning in higher education. *Academy of Management Learning & Education, 4*(2), 193-212.

Kolb, D. A. (1984). *Experiential learning: experience as the source of learning and development.* Englewood Cliffs, NJ: Prentice Hall.

Kuh, G. D. (2008). *High-impact educational practices: what they are, who has access to them, and why they matter.* Washington, DC: Association of American Colleges and Universities.

Japson, K. (2005). Conversations - and negotiated interaction - in text and voice chat rooms. *Language Learning & Technology, 9*(3), 79–98.

Landry, B. (2003). *Student reactions to web enhanced instructional elements.* PhD dissertation, Mississippi State University, Starkville, MS.

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management, 40*(3), 191-204.

Leung, Y. F. & Ivy, M. (2003). How useful are course websites? A study of students' perceptions. *Journal of Hospitality, Leisure, Sport, and Tourism Education, 2*(2), 15-25.

Lin, H. (2008). Blending online components into traditional instruction in pre-service teacher education: the good, the bad, and the ugly. *International Journal for the Scholarship of Teaching and Learning*, *2*(1), 1-14.

Lin, Q. (2008). Student satisfactions in four mixed courses in elementary teacher education program. *Internet and Higher Education, 11*(1), 53-59.

Lin, Q. (2009). Student views of hybrid learning: a one-year exploratory study. *Journal of Computing in Teacher Education, 25*(2), 57-66.

Lincoln, Y. S., & Guba, E. G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: Sage.

Littlejohn, A., & Pegler, C. (2007). *Preparing for blended e-learning*. Abingdon, England: Routledge.

López-Pérez, M., Pérez-López, M., & Rodríguez-Ariza, L. (2011). Blended learning in higher education: students' perceptions and their relation to outcomes. *Computers & Education, 56*(3), 818-826.

Luke, C. (2003). Pedagogy, connectivity, multimodality, and interdisciplinarity. *Reading Research Quarterly, 38*(3), 397-403.

Lundvell, B. Å. (Ed.) (2010). *National systems of innovation: toward a theory of innovation and interactive learning*. London, England: Anthem Press.

Macdonald, J. (2006). *Blended learning and online tutoring: a good practice guide*. Aldershot, England: Gower.

Mackenzie, N. & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues in Educational Research, 16*(2), 193-205.

Maleck, M., Fischer, M. R., Kammer, B., Zeiler, C., Mangel, E., Schenk, F., & Pfeifer K .J. (2001). Do computers teach better? A media comparison study for case-based teaching in radiology. *Radiographics 21,*1025-1032.

Marrano, M. G., Haskel, J., & Wallis, G. (2009). What happened to the knowledge economy? ICT, intangible investment, and Britain's productivity record revisited. *Review of Income and Wealth, 55*(3), 686–716.

Martinez-Torres, M. R.; Toral Marin, S. L., Garcia, F. B.; Vazquez, S. G.; Oliva, M. A., & Torres, T. (2008). A technological acceptance of e-learning tools used in practical and laboratory teaching, according to the European higher education area. *Behaviour and Information Technology, 27*(6), 495-505.

Matheos, K., Daniel, K., & McCalla, G. (2005). Dimensions for blended learning technology: learners' perspectives. *Journal of Learning Design, 1*(1), 56-76.

McClue, B., Esmail, A., & Eargle, L. (2006). Assessing effective online instruction sites. *Academic Exchange Quarterly, 10*(4), 95-100.

McGarr, O. (2009). A review of podcasting in higher education: its influence on the traditional lecture. *Australasian Journal of Educational Technology, 25*(3), 309-321.

Mertens, D. M. (1998). *Research methods in education and psychology: integrating diversity with qualitative and quantitative approaches.* Thousand Oaks, CA: Sage.

Mertens, D. M. (2005). *Research and evaluation in education and psychology: integrating diversity with quantitative, qualitative, and mixed methods* 2nd ed. Thousand Oaks, CA: Sage.

Mertler, C. A., & Charles, C. M. (2011). *Introduction to educational research* 7th ed. Upper Saddle River, NJ: Allyn & Bacon.

Metz, H. C. (1992). *Area handbook series. Saudi Arabia: a country study*. Washington, DC: Library of Congress.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: an expanded sourcebook.* Thousand Oaks, CA: Sage.

Minichiello, V., Aroni, R., & Hays, T. (2008). *In-depth interviewing: principles, techniques, analysis* (3rd ed.). Frenchs Forest, NSW: Pearson Education Australia.

Ministry of Communications and Information Technology (2007). *National communications and information technology plan*. Riyadh, KSA: Author.

Ministry of Communications and Information Technology (2011). *Brief history*. Retrieved 9 May 2011 from http://www.mcit.gov.sa/english

Ministry of Economy and Planning (2010a), *Saudi economy indicators, 2010*. Retrieved 4 May 2011 from http://www.mep.gov.sa/index.jsp;jsessionid=7B9F7A05132D2F3474EDBFA3A5778313.beta?event=ArticleView&Article.ObjectID=54

Ministry of Economy and Planning (2010b) *National communications and IT plan, 2007*. Riyadh, KSA: Author.

Ministry of Education (2003). *Ten years' plan of Ministry of Education* (in Arabic). Riyadh, KSA: Author.

Ministry of Higher Education (2010a). *Higher education in numbers and figures*, 2nd ed. Riyadh, KSA: Author.

Ministry of Higher Education (2010b). *Ministry of Higher Education's plan to achieve excellence in science and technology*. Riyadh, KSA: Author.

Mirza, A. (2008). Students' perceived barriers to in-class participation in a distributed and gender segregated educational environment. *Electronic Journal of Information Systems in Developing Countries, 35*. Retrieved 11 July 2011 at http://www.ejisdc.org/ojs2/index.php/ejisdc/article/view/488

Mirza, A. (2009). Developing university e-content through incentives almost overnight, the case of King Saud University. In G. Siemens, & C. Fulford (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications*. Chesapeake, VA: Association for the Advancement of Computers in Education.

Moore, M. (1989). Editorial: three types of interaction. *American Journal of Distance Education, 3*(2), 1-7.

Moore, M. (2008). What students really want. *American Journal of Distance Education, 22*(1), 1-2.

Moore, M., & Kearsley, G. (1996). *Distance education: a systems view*. New York, NY: Wadsworth.

Morgan, D. L. (2007). Paradigms lost and pragmatism regained: methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research, 1*(1), 48-76.

Nachmias, R., & Segev, L. (2003). Students' use of content in web-supported academic courses. *Internet and Higher Education, 6*(2), 145-157.

National Centre for E-learning (Saudi Arabia) (2010). *About us*. Retrieved 5 May 2011 from http://www.elc.edu.sa/portal/index.php?mod=content&page=13.

Nolan, L. E. (2011, 16 March). Keeping the kingdom: the politics of higher education reform in Saudi Arabia, Paper presented at the annual meeting of the *International Studies Association Annual Conference: global governance: political authority in transition*, Montreal, Quebec.

Nunan, T., George, R., & McCausland, H. (2000). Rethinking the ways in which teaching and learning are supported: the Flexible Learning Centre at the University of South Australia. *Journal of Higher Education Policy and Management, 22*(1), 85-98.

Nyre, L. (2008). *Sound media: from live journalism to sound recording*. Abingdon, England: Routledge.

Obeidi, A. S. (1995). *Education and culture in the reign of King Abdulaziz*. (In Arabic) Riyadh, KSA: Dar Alroshd.

Ocak, M. A. (2011). Why are faculty members not teaching blended courses? Insights from faculty members. *Computers & Education, 56*(3), 689-699.

Olapiriyakul, K., & Scher, J. M. (2006). A guide to establishing hybrid learning courses: employing information technology to create a new learning experience, and a case study. *Internet and Higher Education, 9*(4), 287-301.

Oliver, R. (2005). Using a blended learning approach to support problem-based learning with first year students in large undergraduate classes. In C. Looi, D. Jonassen, & M. Ikeda (Eds.), *Towards sustainable and scalable educational innovations informed by the learning sciences.* Amsterdam, Netherlands: IOS Press.

Onsman, A. (2010). Dismantling the perceived barriers to the implementation of national higher education accreditation guidelines in the Kingdom of Saudi Arabia. *Journal of Higher Education Policy and Management, 32*(5), 511-519.

Onwuegbuzie, A., & Leech, N. (2007). Sampling designs in qualitative research: making the sampling process more public. *Qualitative Report, 12*(2), 238-254.

Osguthorpe, R. T., & Graham, C. R. (2003). Blended learning environments: definitions and directions, *Quarterly Review of Distance Education, 4*(3), 227-233.

Oshlyansky, L., Cairns, A. P., & Thimbleby, H. (2007, 3-7 September). Validating the unified theory of acceptance and use of technology (UTAUT) tool cross-culturally. Paper in *Proceedings of the 21st British HCI Group Annual Conference on People and Computers: HCI . . . but not as we know it, 2,* Lancaster, England: University of Lancaster.

Osman, M. (2005). Students' reaction to WebCT: implications for designing on-line learning environments. *International Journal of Instructional Media, 32*(4), 353-362.

Pallant, J. (2007). *SPSS survival manual: a step-by-step guide to data analysis using SPSS for Windows (Version 15),* (3rd ed.). Crows Nest, NSW: Allen & Unwin.

Palloff, R., & Pratt, K. (1999). *Building learning communities in cyberspace: effective strategies for the online classroom*. San Francisco, CA: Jossey-Bass.

Palocsay, S. W., & Stevens, S .P. (2008). A study of the effectiveness of web-based homework in teaching undergraduate business statistics. *Journal of Innovative Education, 6*(2), 213-232.

Pannitz, R. (1996). A definition of collaborative vs. cooperative learning. *Cooperative Learning and College Teaching*. Retrieved 1 July 2011 from http://www.friendsofchalkbytes.org/

Papacharissi, Z. (2009). The virtual geographies of social networks: a comparative analysis of Facebook, LinkedIn and ASmallWorld. *New Media & Society, 11* (1-2), 199-220.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Thousand Oaks, CA: Sage.

Piaget, J., & Cook, M. (Trans.) (1937/1954). *The construction of reality in the child*, New York, NY: Basic Books.

Picciano, A. G. (2002). Beyond student perceptions: issues of interaction, presence, and performance in an online course. *Journal of Asynchronous Learning Networks, 6*(1), 21-40.

Picciano, A. G. (2009). Blending with purpose: the multimodal model. *Journal of the Research Center for Educational Technology, 5*(1), 4-14.

Picciano, A. G., & Dziuban, C. D. (Eds.) (2007). *Blended learning: research perspectives.* Needham, MA: Sloan Consortium.

Oyaid, A. (2009). *Education policy in Saudi Arabia and its relation to secondary school teachers' ICT use, perceptions, and views of the future of ICT in education.* Unpublished PhD thesis, University of Exeter, Exeter, England.

Ramady, M. A. (2010). *The Saudi Arabian economy: policies, achievements and challenges,* 2nd ed. New York, NY: Springer.

Reasons, S., Valadares, K., & Slavkin, M. (2005). Questioning the hybrid model: Student outcomes in different course formats. *Journal of Asynchronous Learning Networks, 9*(1), 83-94.

Redmond, W. (2003). Innovation, diffusion, and institutional change. *Journal of Economic Issues, 37*(3), 665-679.

Rice, R., Hiltz, S., & Spencer, D. (2005). Media mixes and learning networks. In S. Hiltz, & R. Goldman, (Eds.) *Learning together online: research on asynchronous learning networks*. Mahweh, NJ: Lawrence Erlbaum

Rockart, J. F., & Scott Morton, M. S. (1975). *Computers and the learning process in higher education. A report prepared for the Carnegie Commission on Higher Education*. New York, NY: McGraw-Hill.

Rogers, E. M. (1962). *Diffusion of innovation*. New York, NY: Free Press.

Rogers, E. M. (2003) *Diffusion of innovation* (5th ed.). New York, NY: Free Press.

Rossett, A., Douglis, F., & Frazee, R. (2003). Strategies for building blended learning. *Learning circuits, 4*(7). Retrieved 18 April 2011 from http://ablendedmaricopa.pbworks.com/f/Strategies%20Building%20Blended%20Learning.pdf

Rovai, A., & Jordan, H. (2004). Blended learning and sense of community: a comparative analysis with traditional and fully online graduate courses. *International Review of Research in Open and Distance Learning, 5*(2). pp. 1-13.

Sait, S., Al-Tawil, K., Ali, S., & Khan, S. (2003, 7-10 January). The use and effect of internet on teachers and students in Saudi Arabia. Paper presented at the *Hawaii International Conference on Education,* Honolulu, HI.

Sang, S., Lee, J. D., & Lee, J. (2009). E-government adoption in ASEAN: the case of Cambodia, *Internet Research, 19*(5), 517–534.

Saudi Network (no date). *Map*. Retrieved 14 April 2011 from http://www.the-saudi.net/saudi-arabia/saudi-map.htm

Saudi Computer Society (2004). *National information technology plan* (Draft version). Riyadh, KSA: Author.

Saudi Government (2007). *National profile of the information society in the Kingdom of Saudi Arabia: report to the Economic and Social Commission for Western Asia*. Riyadh, KSA: Author.

Savery, J. R., & Duffy, T. M. (1995). Problem based learning: an instructional model and its constructivist framework. *Educational Technology, 35*(5), 31-38.

Schepers, J., & Wetzels, M. (2007). A meta-analysis of the technology acceptance model: Investigating subjective norm and moderation effects. *Information & Management, 44*(1), 90-103.

Scriven, M. (2000). *The logic and methodology of checklists*. Dissertation, Claremont Graduate University, Claremont, CA.

Shana, Z. (2009). Learning with technology: using discussion forums to augment a traditional-style class. *Educational Technology & Society, 12*(3), 214–228.

Sharma, M. D., Johnston, I. D., Johnston, H., Varvell, K., Robertson, G., Hopkins, A., Stewart, C., Cooper, I., & Thornton, R. (2010). Use of interactive lecture demonstrations: a ten year study. *Physical Review Special Topics: Physics Education Research, 6*(2), 119-128.

Sharpe, R., Benfield, G., Roberts, G., & Francis, R. (2006). *The undergraduate experience of blended e-learning: a review of UK literature and practice*. York, England: Higher Education Academy.

Shashani, L. (1997). Gender differences in computer attitudes and use among college students. *Journal of Educational Computing Research, 16*(1), 37-52.

Sher, A. (2009). Assessing the relationship of student-instructor and student-student interaction to student learning and satisfaction in web-based online learning environment. *Journal of Interactive Online Learning, 8*(2), 102-120.

Shroff, R., & Vogel, D. (2010). An investigation on individual students' perceptions of interest utilizing a blended learning approach. *International Journal on E-Learning, 9*(2), 279-294.

Shwehdi, M. H. (2005). Thunderstorm distribution and frequency in Saudi Arabia. *Journal of Geophysics and Engineering, 2*(3), 252-267.

Sigel, I., & Vandenberg, B. (1994). Reviewed work: voices of the mind: a sociocultural approach to mediated action by James V. Wertsch. *Psychological Inquiry, 5*(4), 344-353.

Simsim, M. T. (2011). Internet usage and user preferences in Saudi Arabia, *Journal of King Saud University - Engineering Sciences*, in press, corrected proof, online 6 April 2011.

Singh, H. (2003). Building effective blended learning programs. *Educational Technology, 43*(6), 51-54.

Snart, J. (2010). *Hybrid learning: the perils and promise of blending online and face-to-face instruction in higher education*. Santa Barbara, CA: Praeger.

So, H. J., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: relationships and critical factors. *Computers & Education, 51*(1), 318-336.

Soares, A M., Farhangmehr, M., & Shoham, A. (2007). Hofstede's dimensions of culture in international marketing studies. *Journal of Business Research, 60*(12). 277-284.

Somekh, B., & Lewin, C. (2005). *Research methods in the social sciences*. London, England: Sage.

Sosnovsky, S., Brusilovsky, P., Lee, D., Zadorozhny, V., & Zhou, X. (2008). Re-assessing the value of adaptive navigation support in e-learning context. In W. Nejdl, J. Kay, P. Pu, & E. Herder (Eds.), *Adaptive hypermedia and adaptive web-based systems, Lecture notes in computer science, 5149*. Berlin, Germany: Springer.

Stacey, E., & Gerbic, P. (2006). Teaching for blended learning: how is ICT impacting on distance and on campus education? In D. Kumar, & J. Turner (Eds.), *Education for the 21st century: impact of ICT and digital resources*. Berlin, Germany: Springer.

Stacey, E., & Gerbic, P. (2009). Introduction to blended learning practices. In E. Stacey & P. Gerbic (Eds.), *Effective blended learning practices: evidence-based in perspectives in ICT-facilitated education*. Hershey, PA: IGI Global.

Steffe, L. P., & Gale, J. (Eds.) (1995). *Constructivism in education*. Hillsdale, NJ: Lawrence Erlbaum.

Straub, D., Keil, M., & Brenner, W. (1997), Testing the technology acceptance model across cultures: a three country study, *Information & Management, 33*(11), 1-11.

Su, B., Bonk, C., Magjuka, R., Liu, X., & Lee, S. (2005). The importance of interaction in web-based education: a program-level case study of online MBA courses. *Journal of Interactive Online Learning, 4*(1), 1-19.

Suebsin, C., & Gerdsri, N. (2009, 2-6 August). Key factors driving the success of technology adoption: case examples of ERP adoption, Paper presented at *Portland International Conference on Management in Engineering and Technology*, Portland, OR.

Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. (2008). What drives a successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education, 50*(4), 1183-1202.

Susskind, J. (2008). Limits of PowerPoint's power: enhancing students' self-efficacy and attitudes but not their behavior. *Computers & Education, 50*(4), 1228-1239.

Swan, K. (2009). Online collaboration: introduction to the special issue on blended learning. *Journal of Asynchronous Learning Networks, 10*(1), 3-5.

Tang, M., & Byrne, R. (2007). Regular versus online versus blended: A qualitative description of the advantages of the electronic modes and a quantitative evaluation. *International Journal on E-learning, 6*(2), 257-266.

Taradi, S., Taradi, M., Radić, K., & Pokrajac, N. (2005). Blending problem-based learning with web technology positively impacts student learning outcomes in acid-base physiology. *Advances in Physiology Education, 29*(1), 35-39.

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: combining qualitative and quantitative approaches*. London, England: Sage.

Tashakkori, A., & Teddlie, C. (Eds.) (2003). *Handbook of mixed methods in social and behavioral research.* Thousand Oaks, CA: Sage.

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: integrating quantitative and qualitative approaches in the social and behavioral sciences*. Thousand Oaks, CA: Sage.

Thevenot, G. (2007). Blogging as a social media. *Tourism and Hospitality Research 7*(3/4), 287-289.

Tieben, N., & Wolbers, M. (2010). Transitions to post-secondary and tertiary education in the Netherlands: a trend analysis of unconditional and conditional socio-economic background effects. *Higher Education, 60*(1), 85-100.

Tinto, V. (1975). Dropout from higher education: a theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89-125.

Topkaya, E. Z. (2010). Pre-service English language teachers' perceptions of computer self-efficacy and general self-efficacy. *TOJET, Turkish Online Journal of Educational Technology, 9*(1), 143-156.

Tubaishat, A., Bhatti, A., & El-Qawasmeh, E. (2008). ICT experiences in two different Middle Eastern universities. *Issues in Informing Science and Information Technology, 3*, 1-12.

Turney, C., Robinson, D., Lee, M., & Soutar, A. (2009). Using technology to direct learning in higher education. The way forward? *Active Learning in Higher Education, 10*(1), 71-83.

Twigg, C. (2003). *Improving learning and reducing costs: lessons learned from round I of the Pew grant program in course redesign*. Troy, NY: Rensselaer Polytechnic Institute.

Uğur, B., Akkoyunlu, B., & Kurbanoğlu, S. (2009). Students' opinions on blended learning and its implementation in terms of their learning styles. *Education and Information Technologies, 16*(1), 1-19.

Umm Al-Qura University (2008). *Information Technology Centre: achievements and aspirations*. Makkah, KSA: Author.

Umm Al-Qura University (2011). *About the university*. Retrieved 6 May 2011 at http://uqu.edu.sa/english.

United Nations Education Scientific and Cultural Organisation (UNESCO) (no date). *Policy on ICT*. Retrieved 8 April 2011 from http://www.unesco.org/new/en/unesco/themes/icts/policy.

United States Census Bureau (2011), *International data base*. Retrieved 14 April 2011 from http://www.census.gov/ipc/www/idb/country.php.

Valiathan, P. (2002). Blended learning models. *Learning Circuits*. Retrieved 18 April 2011 from http://www.astd.org/LC/2002/0802_valiathan.htm.

Vaughan, N. (2007). Perspectives on blended learning in higher education. *International Journal on E-learning, 6*(1), 81-94.

Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: development and test. *Decision Sciences 27*(3), 451-482.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the Technology Acceptance Model: four longitudinal field studies. *Management Science 46*(2), 186-204.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: toward a unified view. *Management Information Systems Quarterly, 27*(3), 425-478.

Vickery, G., & Wunsch-Vincent, S. (2007). *Participative web and user-created content: web 2.0, wikis and social networking*. Paris, France: Organisation for Economic Co-operation and Development.

Vygotsky, L. S. (1978). *Mind and society: the development of higher mental processes.* Cambridge, MA: Harvard University Press.

Wagner, E. (1994). In support of a functional definition of interaction. *American Journal of Distance Education, 8*(2), 6-29.

Wagner, E. (2006). On designing interaction experiences for the next generation of blended learning. In C. Bonk, & C. Graham (Eds.). *Handbook of blended learning: global perspectives, local designs*. San Francisco, CA: Pfeiffer.

Wallace, L., & Young, J. (2010). Implementing blended learning: policy implications for universities. *Online Journal of Distance Learning Administration, 13*(4). Retrieved 21 April 2011 from http://www.westga.edu/~distance/ojdla/winter134/wallace_young134.html.

Walls, S., Kucsera, J., Walker, J., Acee, T., McVaugh, N., & Robinson, D. (2010). Podcasting in education: are students as ready and eager as we think they are? *Computers & Education, 54*(2), 371-378.

Warschauer, M., & Liaw, M. L. (2010). *Emerging technologies in adult literacy and language education.* Report for National Institute for Literacy, Washington, DC.

Wertsch, J. (1991). *Voices of the mind: a sociocultural approach to mediated action*. Cambridge, MA: Harvard University Press.

Wessels, A., Fries, S., Horz, H., Scheele, N., & Effelsberg, W. (2007). Interactive lectures: effective teaching and learning in lectures using wireless networks, *Computers in Human Behavior, 23*(5), 2524-2537.

Wikipedia (no date). *Using Wikipedia as a research tool*. Retrieved 27 April 2011 from http://en.wikipedia.org/wiki/Wikipedia:About#Using_Wikipedia_as_a_research_tool.

Wilkinson, D., & Birmingham, P. (2003). *Using research instruments: a guide for researcher*. London, England: RoutledgeFalmer.

Woods, R., Baker, R., & Hopper, D. (2004), Hybrid structures: faculty use and perception of web-based courseware as a supplement to face-to-face instruction, *Internet and Higher Education, 7*(4), 281-297.

Woodside, A., & Biemans, W. (2005). Managing relationships, networks, and complexity in innovation, diffusion, and adoption processes. *Journal of Business & Industrial Marketing, 20*(7), 335-339.

World Bank (2010, 1-4 November). Overview. *Global symposium on ICT use in education: building national ICT/education agencies.* Seoul, South Korea.

World Factbook (2011a) *Saudi Arabia*. Retrieved 10 May 2011 from https://www.cia.gov/library/publications/the-world-factbook/geos/sa.html

World Factbook (2011b). *Country comparison: total fertility rate*. Retrieved 4 May 2011 from https://www.cia.gov/library/publications/the-world-factbook/rankorder/2127rank.html

Wu, M. Y., Chou, H. P., Weng, Y. C., & Huang, Y. H. (2008, 9-12 December). A study of Web 2.0 website usage behavior using TAM 2. Paper presented at *Asia-Pacific Services Computing Conference,* Institute of Electrical and Electronics Engineers, Yilan, Taiwan.

Wu, J., Tennyson, R., & Hsia, T. (2010). A study of student satisfaction in a blended e-learning system environment. *Computers & Education, 55*(1), 155-164.

Wynbrandt, J. (2010). *A brief history of Saudi Arabia*, 2nd ed. New York, NY: Infobase.

Yeh, Y. C. (2010). Integrating collaborative PBL with blended learning to explore preservice teachers' development of online learning communities, *Teaching and Teacher Education, 26*(8), 1630-1640.

Young, J. (2002, 22 March). Hybrid teaching seeks to end the divide between traditional and online instruction. *The Chronicle of Higher Education*, *48*(28), A33-34.

Yuen, H. K., Deng, L., Fox, R., & Tavares, N. (2009). Engaging students with online discussion in a blended learning context: issues and implications. In F.L. Wang, J. Fong, L. Zhang, & V. S. K. Lee (Eds.), *Proceedings of second international conference, hybrid learning and education*, Macau, China.

Yushau, B. (2006). The effects of blended e-learning on mathematics and computer attitudes in pre-calculus algebra. *The Montana Mathematics Enthusiast, 3*(2), 176-183.

Zhao, F. (2003). Enhancing the quality of online higher education through measurement. *Quality Assurance in Education, 11*(4), 214-221.

Zhao, G., & Yuan, S. (2010). Key factors of effecting blended learning satisfaction: a study on Peking University students. *Hybrid Learning, 6248*, 282-295.

Appendices

Appendix A Student Questionnaire (English Version)

Part 1: Demographic Information

For each statement, please indicate the option that best fits your answer.

1.	Gender:	A. Male. B. Female.
2.	Your current university level:	A. First year B. Second year C. Third year D. Fourth year
3.	Your College:	(Please fill in) e.g. Science. ……..
4.	Total number of hours in this semester(study load):	A. less than 10 B. 11- 15 C. 16- 20 D. 21- 25
5.	How long does it take you from your home to get to UQU campus?	A. less than 15 Minutes. B. 16-30 Min. C. 31-45 Min. D. more than 45 Min.

Part 2: Computer and Internet Background

6.	I have access to a computer:	A. at home. B. at UQU. C. elsewhere (.....) D. None
7.	I have access to the Internet:	A. at home. B. at UQU. C. elsewhere (.....) D. No
9.	I have attended a computer training program at UQU:	A. Yes, for how long […..] weeks. B. No
10.	I have taken a course supported with an online instruction :	A. if Yes, how many courses? […] courses. B. No
11.	On average, I access the Internet:	A. Daily. B. Twice a week. C. Once a week. D. Never.
12.	On average, I access to my instructor's website for this course:	A. Daily. B. Weekly. C. Monthly. D. Never.

13. Please, rate the level of skill you have in using the following Internet tools and/or computer applications by using the following scale:

1= None; 2 = Inadequate; 3= Adequate; 4=Good; 5 = Excellent.

A	Send and receive an e-mail (consider attachments)	1	2	3	4	5
B	Web searching using search engines (e.g., Google, Yahoo, etc.)	1	2	3	4	5
C	Internet browsers (e.g., Netscape, Internet Explorer, etc.)	1	2	3	4	5
D	Threaded discussion (e.g., discussion forum)	1	2	3	4	5
E	Web page creating programs (e.g., Front Page, Dreamweaver, etc.)	1	2	3	4	5
F	Microsoft Office applications (e.g., Word, PowerPoint, Excel, etc.).	1	2	3	4	5
G	Using imaging devices (e.g., Scanner, digital or video camera, etc.)	1	2	3	4	5

Part 3: Students' perceptions toward the implementation of their instructors' websites

The following statements are concerned with experience in using your instructor's website as a complementary instructional resource for this course. **Please note that there is no right or wrong answer and this is NOT an evaluation of your instructor**. For each statement, please indicate your level of agreement by using the following scale:

1= Strongly Disagree; 2= Disagree; 3= Agree; 4= Strongly Agree.

	Statement: I believe that the utilization of my instructor's website in this course:	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**
14	Increases accessibility to valuable course-related resources and information (e.g., related video, article, website, etc.).	1	2	3	4
15	Results in better and faster access to required information (e.g. assignment due date, grading system, etc.).	1	2	3	4
16	Increases the flexibility of my learning time (e.g., access the learning activities at time convenient to me)	1	2	3	4
17	Increases my productivity in class (e.g., more participation on activities and discussions in the class).	1	2	3	4
18	Enhances my satisfaction of the course.	1	2	3	4

19	Makes my instructor more accessible at other times.	1	2	3	4
20	Reduces the cost of education to me (e.g., no need to purchase printed references, books, etc.).	1	2	3	4
21	Saves me time and money for unnecessary travel to campus.	1	2	3	4
22	Enhances my confidence to use the Internet communication tools.	1	2	3	4
23	Allows me to access lessons on the web on days when I am absent from class.	1	2	3	4
24	Results in significantly better learning experiences compared to face-to-face classroom only.	1	2	3	4
25	Allows me to engage in the learning activities.	1	2	3	4
26	Enables the instructor to address individual student's needs effectively.	1	2	3	4
27	Improves my learning achievement in this course.	1	2	3	4
28	Enhances my learning through better understanding of course content as there is a range of learning resources (e.g., PowerPoint slides, videos, audio, and animations).	1	2	3	4
29	Facilitates my revision of previously learned material.	1	2	3	4
30	Extends my learning process outside the classroom.	1	2	3	4
31	Provides me with adequate communication channels with the instructor (e.g., email, forum, etc.).	1	2	3	4
32	Enhances interaction between instructor and students.	1	2	3	4
33	Enhances interaction between me and my colleagues.	1	2	3	4
34	Increases academic discussions in class.	1	2	3	4
35	Encourages me to collaborate and share ideas.	1	2	3	4

36	Offers me more freedom and convenience to interact with my instructor.	1	2	3	4
37	Provides faster feedback from instructor.	1	2	3	4
38	Offers me an opportunity to contribute to the course materials (e.g., comment, participate in discussions, etc.).	1	2	3	4
39	Increase my motivation to participate in class activities.	1	2	3	4

40. Please rate the levels of perceived benefits of the following features of your instructor's website:

	Website Feature	**N/A**	**Low**	**Medium**	**High**
a.	Announcement	0	1	2	3
b.	Course syllabus	0	1	2	3
c.	Instructor information	0	1	2	3
d.	Exercises	0	1	2	3
e.	Lecture / Lecture notes	0	1	2	3
f.	Course-related readings	0	1	2	3
g.	Relevant websites	0	1	2	3
h.	Online communication -email	0	1	2	3
j.	Discussion Board- forum	0	1	2	3
k.	Others: (1)……				

Part 4: Open ended questions

Please, answer the following open ended questions by giving a few sentences to express you view:

41. What are some of the other features and/or activities that you believe should be incorporated in your instructors' websites?

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42. According to your experience in this course, what are some of the advantages of using your instructor's website?

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43. According to your experience in this course, what are some of the issues of using your instructor's website?

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Part 5: Factors affecting the students' adoption of their instructors' websites

The following statements are concerned with the factors that you believe have an impact on you as a student in adopting your instructor's website. For each statement, please indicate the level of your agreement by using the following scale:

1= Strongly Disagree; 2= Disagree; 3= Agree; 4= Strongly Agree.

	Statement: I believe that the following are the most factors affecting my adoption of my instructor's website:	**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**
44.	The lack of technical support.	1	2	3	4
45.	The lack of equipment and IT infrastructure at UQU campuses.	1	2	3	4
46.	The lack of technology skills and computer literacy.	1	2	3	4
47.	The belief that the instructor's website would not benefit me.	1	2	3	4
48.	Instructors are not encouraging me to make use of and contribute to their websites.	1	2	3	4
49.	There is no advantage of accessing online materials, as they are the same as printed materials.	1	2	3	4
50.	The course does not require additional support, as it is so easy.	1	2	3	4
51	Other (please explain): …… ……				

&&&& Thank You for your participation. &&&&

Appendix B Student Questionnaire (Arabic Version)

الجزء الاول: المعلومات الشخصية

الرجاء اختيار الاجابة الانسب في كل ممايلي:

.1	نوع الجنس:	أ- ذكر ب- انثى
.2	المعدل التراكمي:	أ- 1—2 ب- 2.25 –3.25 ج- 3.5--4
.3	المستوى الجامعي :	المستوى : 1 2 3 4 5 6 7 8
.4	اسم الكلية :	(مثلا كلية العلوم التطبيقية) .....
.5	مجموع الساعات الدراسية لهذا الفصل الدراسي :	أ- اقل من 10 ساعات ب- 11 –15 ساعة ج- 16 ---20 ساعة د- 21—25 ساعة
.6	الوقت اللازم للوصول الي الجامعة:	أ- اقل من 15 دقيقة ب- 16---30 دقيقة ج- 31—45 دقيقة د- اكثر من 45 دقيقة

الجزء الثاني: الخبرات المتعلقة بالحاسب الالي والانترنت

.7	أستخدم الحاسب الالي في :	أ- البيت ب- الجامعة ج- مكان آخر..... د. لا استخدمه
.8	أستخدم الانترنت في :	أ- البيت ب- الجامعة ج- مكان آخر..... د. لا استخدمها
.9	سبق لي الالتحاق بدورة تدريبة في الحاسب الالي بالجامعة :	أ- نعم ، ولمدة ( ) اسيوع ب- لا
.10	سبق لي الالتحاق بمقررات معززة بمواد تعليمية على الانترنت:	أ- نعم ، عددها ( ) مقرر ب- لا
.11	في المتوسط ، استخدم الانترنت :	أ- يوميا ب- مرتين في الاسبوع ج- مرة في الاسبوع د- ولا مرة
.12	في المتوسط ، استخدم الموقع الخاص باستاذي في هذا المقرر :	أ- يوميا ب- اسبوعيا ج- شهريا د- لم استخدمة

13. في الفقرات التالية ، الرجاء تحديد المستوى المهاري في استخدام تطبيقات الحاسب الالي اوالانترنت مستخدما المعيار التالي
1= مهارة قليلة جدا ، 2= القليل من المهارة ، 3= مهارة كافية ، 4= مهارة عالية ، 5= مهارة عالية جدا

أ	البريد الالكتروني (بالاضافة للمرفق)	1	2	3	4	5
ب	محركات البحث على الانترنت (مثل : قوقل ، ياهو ، وغيره)	1	2	3	4	5
ج	متصفحات الانترنت (مثل: اكسبلورر ، نت سكاب ، وغيره)	1	2	3	4	5
د	المنتديات الحوارية	1	2	3	4	5
هـ	برامج انشاء صفحات الانترنت(مثل الفرنت بيج ، دريم ويفر، وغيره)	1	2	3	4	5
ي	تطبيقات ميكروسفت اوفس (مثل: الوورد ، البوربوينت ، وغيره)	1	2	3	4	5
ع	الاجهزة الخاصة بالصور(مثل الماسح الضوئي ، وغيره)	1	2	3	4	5

الجزء الثالث : انطباعات الطلاب / الطالبات تجاه استخدام مواقع اعضاء هيئة التدريس الخاصة على الانترنت:

العبارات التالية تهدف الي معرفة انطباعك تجاه تجربتك في استخدام الموقع الخاص باستاذك كمصدر تعليمي مكمل لهذا المقرر.
الرجاء ملاحظة انه لا توجد اجابة صحيحة او خاطئة كما ان هذه الاستبانة لا تعني تقييم لاستاذك في هذه المقرر. فضلا اشر الى مستوى موافقتك في كل فقرة مستخدما المعيار التالي:

1= لا اوفق بشدة ، 2 = لا اوافق ، 3 = اوفق ، 4 = اوفق بشدة

	العبارة: استخدام الموقع الخاص باستاذي في هذا المقرر:	لا اوفق بشدة	لا اوافق	اوفق	اوفق بشدة
14	زاد من امكانية الوصول الي المصادر والمعلومات القيمية ذات العلاقة بالمقرر الدراسي مثل المقالات ، المواقع ، وبعض لقطات الفيديو ذات العلاقة	1	2	3	4
15	نتج عته وصول اسرع وافضل للمعلومات المطلوبة مثل مواعيد الواجبات و نظام توزيع الدرجات وغيره	1	2	3	4
16	زاد من مرونة وقت التعلم بحيث يمكن الوصول الي الانشطة التعليمية في اوقات مريحة وملائمة اكثر	1	2	3	4
17	زاد من انتاجيتي داخل الفصل بحيث اصبحت اكثر مشاركة في الانشطة او النقاشات داخل الفصل	1	2	3	4
18	حسن من رضاي عن هذ المقرر	1	2	3	4
19	جعل التواصل مع استاذي ممكنا في كل الاوقات	1	2	3	4
20	قلل من النكالبف الدراسية بحيث لم يعد هناك حاجة لشراء المراجع المطبوعة	1	2	3	4
21	وفر الكثير من الوقت والمال في عدم الحاجة الي الذهاب الي الجامعة في كثير من الاحيان	1	2	3	4
22	زاد من ثقتي في التعامل مع ادوات الاتصال المنوفرة على شبكة الانترنت	1	2	3	4
23	سمح لي الحصول على المحاظرات في حالة الغياب	1	2	3	4
24	نتج عنه خبرات تعليمية افضل مقارنة مع التعليم الصفي بمفرده	1	2	3	4
25	سمح لي بالاندماج في الانشطة التعليمية	1	2	3	4

26	مكن الاستاذ من تلبية احتياجاتي الفردية بفعالية	**1**	**2**	**3**	**4**
27	حسن من تحصيلي العلمي في هذا المقرر	**1**	**2**	**3**	**4**
28	حسن من فهمي لمحتويات المقرر من خلال توفر اتواع مختلفة من مصادر التعلم مثل شرائح العرض ، المقاطع الفديوية، التطبيقات الحركية، وغيرها	**1**	**2**	**3**	**4**
29	ساعد في استذكاري لما سبق تعلمه	**1**	**2**	**3**	**4**
30	زاد من عملية التعلم خارج فصول الدراسة	**1**	**2**	**3**	**4**
31	اتاح لي قنوات اتصال كافية للتواصل مع استاذي في هذا المقرر من خلال استخدام البريد الالكتروني او المنتدى الحواري	**1**	**2**	**3**	**4**
32	حفز عملية التفاعل بين الاستاذ والطلاب	**1**	**2**	**3**	**4**
33	حفزني على التفاعل مع اقراني في هذا المقرر	**1**	**2**	**3**	**4**
34	زاد من النقاشات الاكاديمية او التربوية داخل الفصل	**1**	**2**	**3**	**4**
35	شجعني على التعاون ومشاركة الافكار	**1**	**2**	**3**	**4**
36	اتاح لي حرية اكثر واريحية في التفاعل مع استاذي في هذا المقرر	**1**	**2**	**3**	**4**
37	وفر لي تغذية راجعة اسرع من قبل استاذي	**1**	**2**	**3**	**4**
38	اتاح لي فرصة المشاركة في محتويات المقرر وذلك من خلال التعليقات او المشاركة في الحوارات الالكترونية*	**1**	**2**	**3**	**4**
39	زاد من حماسي في المشاركة في الفعاليات داخل الفصل	**1**	**2**	**3**	**4**

40- **ما مدى فائدة كل من الخصائص التالية والتي ربما تتوفر في الموقع الخاص باستاذك في هذا المقرر:**

	الخاصية	لا يتوفر	قليل الفائدة		متوسط		عالي الفائدة	
أ	الاعلانات او التنويهات	0	1	2	3	4	5	
ب	مفردات المقرر	0	1	2	3	4	5	
ج	معلومات عضو هيئة التدريس	0	1	2	3	4	5	
د	التمارين	0	1	2	3	4	5	
هـ	المحاظرات او ملخصاتها	0	1	2	3	4	5	
ي	المراجع (القراءات ذات العلاقة)	0	1	2	3	4	5	
ع	المواقع ذات العلاقة	0	1	2	3	4	5	
غ	التواصل عبر البريد الالكتروني	0	1	2	3	4	5	
س	المنتدى الحواري	0	1	2	3	4	5	
ش	اخرى:							

الجزء الرابع : الاسئلة المفتوحة

فضلا اجب على الاسئلة التالية باعطاء وجهة نظرك في هيئة نقاط او جمل مختصرة:

س41: ما هي اهم الخصائص او الانشطة التي تعتقد بانه يجب ان يتم اضافتها في مواقع اعضاء هيئة التدريس الخاصة؟

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س 42: بناء على تجربتك في هذا المقرر، ما هي اهم مزايا استخدام الموقع الخاص بعضو هيئة التدريس ؟

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س 43: بناء على تجربتك في هذا المقرر، ما هي اهم المشكلات التي تحد من استخدام الموقع الخاص بعضو هيئة التدريس؟

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الجزء الخامس: العناصر المؤثرة على استخدام الطلاب / الطالبات لمواقع اعضاء هيئة التدريس الخاصة

العبارات التالية هي بعض العناصر التي تعتقد باتها قد تؤثر على استخدام الطالب(ة) لموقع عضو هيئة التدريس الخاص . الرجاء قراءة كل فقرة بعناية ومن ثم الاشارة الي درجة الموافقة معها مستخدما المعيار التالي:

1= لا اوفق بشدة ، 2 = لا اوافق ، 3 = اوفق ، 4 = اوفق بشدة

	العبارة: لم استخدم الموقع الخاص باستاذي في هذا المقرر وذلك للاسباب التالية:	لا اوفق بشدة	لا اوافق	اوفق	اوفق بشدة
44	نقص الدعم التقني	1	2	3	4
45	نقص الدعم المادي	1	2	3	4
46	نقص التجهيزات والبنية التحتية الخاصة بتقنية المعلومات بالجامعة	1	2	3	4
47	نقص الدعم والتشجيع الاداري	1	2	3	4
48	نقص المهارات التقنية والمعرفة بالحاسب	1	2	3	4
49	موقع عضو هيئة التدريس عديم الفائدة	1	2	3	4
50	اعضاء هيئة التدريس لا يشجعون على الاستخدام والمشاركة في مواقعهم الخاصة	1	2	3	4
51	لا يوجد اي ميزة في استخدام المواد التعليمية الالكترونية ، اذ انها لا تختلف عن المواد المطبوعة	1	2	3	4
52	نقص استخدام الانترنت	1	2	3	4
53	المقرر لا يحتاج الي روافد اضافية	1	2	3	4
54	اخرى:	1	2	3	4

****** شكرا على المشاركة *******

Appendix C Questions for Semi-Structured Interviews (English Version)

Instructor' semi-structured interview
List of proposed questions

Q1: Why did you decide to supplement your classroom teaching with your website?

Q2: What is the purpose of your website?

Q3: In what ways is your website integrated with the rest of the course materials?

Q4: What are the changes that you have noticed in the learning and teaching process, due to the use of your website as a supplement to your course?

Q5: What are some of the strengths of your website that you believe are beneficial to the students' learning?

Q6: What are some of the strengths of your website that you believe are beneficial to the students' interactions?

Q7: What are some of the difficulties that you have experienced because of the use of your website?

Q8: What are some of the obstacles that you believe may prevent (students, teachers, and universities in S.A) from utilizing WBI?

Q9: Does the integration of your website reduce your lecturing time? If yes, what other learning activities do you do instead?

Q10: What are your expectations of your students with regard to their use of and contribution to your website?

Q11: To what extent do you believe that the use of your website promotes your students' attitudes toward online instruction?

Appendix D Questions for Semi-Structured Interviews (Arabic Version)

اسئلة ومحاور المقابلات الشخصية مع أعضاء هيئة التدريس المشاركين

س1: ما هي الأسباب التي دعتكم الي دعم مقرراتكم بمواد تعليمية على الانترنت من خلال موقعكم الشخصي؟

س2: ما هو الهدف من موقعكم الشخصي المتوافر على موقع الجامعة الالكتروني؟

س3: كيف تتم عملية التكامل بين الموقع ومحتويات وانشطة المقرر الاخرى –التقليدية؟

س4: ما هي أهم التغيرات التي لاحظتها على عمليتي التعلم والتدريس وتعتقد بان لاستخدام الوقع الالكتروني دورا فيها؟

س5: ماهي أهم نقاط القوة (الخدمات) في موقعكم الالكنروني والتي تعتقد بانها اثرت تعلم طلابك في هذا المقرر؟

س6: ما هي أهم الخدمات المتوافرة بموقعكم الالكنرومي والتي تعتقد بان من شأنها اثراء التفاعل لدى الطلاب؟

س7: ماهي ابرز الصعوبات التي واجهنكم جراء استخدام موقغكم الشخصي في هذا المقرر؟

س8: من وجهة نظركم ، ما هي أهم المعوقات التي تواجه كل من الطالب ، الاستاذ، والجامعة في المملكة العربية السعودية وتحد من استخدام التعليم الالكنروني؟

س9: هل استخدام موقعكم الشخصي قلل من فترة الالقاء اثناء المحاضرة ؟ اذا كان كذلك، ما هي الانشطة الاخرى التي يتم استثمار الوقت فيها؟

س10: ما هي تطلعاتك من استخدام طلابك لموقعك الالكنروني في هذا المقرر؟ كيف يمكنهم الإ ستفادة من الموقغ في عملية التعلم ؟

س11: الي أي مدى تعتقد بان استخدام موقعكم الشخصي في هذا المقرر من شأنه تحفيز الطلاب نحو الاقبال على التعليم الالكتروني؟

Appendix E Instructor Websites Evaluation Checklist

Instructor Name:
The Website Title/Name (if applicable):
URL Address:
Date Reviewed:

Evaluation Criteria	No Evident	Yes
A) Accessibility: The website		
1. Has minimal loading time.		
2. Has a ‘’help feature’’ to assist users.		
3. Has clear navigation (e.g., headings, toolbar, icons)		
4. Clearly states the target audience (e.g., course name or number, section).		
5. Has specific sections for:		
a. course enrolled students.		
c. UQU students only.		
d. Anyone.		
B) The web design: The website		
1. Uses a Text menu interface.		
2. Uses a Graphical User Interface (e.g., images, icons).		
3. Uses a combination of text and graphics.		
4. Has a consistent layout.		
5. Uses legible text.		
6. Uses well-matched colour (easy to read)		
7. Has blank or white spaces (about 25%).		
8. Has a home page contains direct links to other sub-pages.		
9. Sub-pages have links back to the main page.		
C) Interactivity Features: The website		
1. Includes a search feature.		
2. Makes use of multimedia features:		
a. Graphics.		
b. Animation.		
c. Audio		
d. Video.		
e. Others.		
3. Makes use of interactive activities:		
a. Games.		
b. Chat.		
c. Discussion board.		
d. Quizzes.		
e. Surveys.		
f. Others.		

D) Contents: The website		
1. Has been recently updated (at least a week ago).		
2. Includes course syllabus		
3.Informs learners of:		
a. Day and time of classes.		
b. Course description.		
c. Course objectives.		
d. Course prerequisites.		
e. Course requirements.		
f. Course calendar.		
g. Grading system.		
h. Assessment tasks.		
4. Has exercises.		
5. Offers previous answered exams.		
6. Offers previous not answered exams.		
7. Offers lecture notes.		
8. Provides students with their results.		
9. Has optional course readings		
10. Has required course readings		
11. Offers PowerPoint slides (e.g., lectures, relevant presentations).		
12. Has links to relevant websites.		
13. Has a link to the instructor's CV.		
E) Communication: The website		
1. Provides instructor's contact details:		
a. Office number and location.		
b. Office phone.		
c. Mobile phone.		
d. E-mail address.		
e. Office hours.		
2.Offers **synchronous student-instructor** online communication:		
a. Instant message.		
b. Videoconferencing.		
c. Other.		
3. Offers **asynchronous student-instructor** online communication:		
a. E-mail.		
b. Discussion board- Forum.		
c. Others		
Total of "Yes"		

Appendix F Invitation Letter

RMIT University

Portfolio: Design & Social Context
School of Education

INVITATION TO PARTICIPATE IN A RESEARCH PROJECT
INSTRUCTORS INVITATION

Dear (Faculty member name),

My name is **Aidd Mohammed Almalki.** I am undertaking a Doctor of Philosophy in Education (PhD) at RMIT University, Design and Social Context portfolio**,** School of Education. The title of my research is: '' **the implementation of blended educational websites: the effects on students' learning and interactions**".

I am pleased to inform you that your website has been ranked as one of the top ten instructors' educational websites residing on the Umm Al-Qura University (UQU) server for the first semester 2009. Pending on your agreement, I would like to use your website for research purposes to elicit students' perceptions of the effects of the website on their learning and interactions.

The purpose of this study is to investigate the use of teachers' websites as a supplement for classroom teaching at UQU. In particular, the study will investigate the effects of the use of these websites on the students' learning and interactions. Some variables that could affect the students' adoption of these websites, such as age, gender, major, computer experience, and prior experience with the Internet will be examined. The information gathered in this study will play a part to develop and implement online instruction at UQU more effectively. A group of teachers from UQU will be interviewed in this study and a large number of students from UQU are being invited to complete a questionnaire about their experiences and interactions with websites.

You have been selected as a potential and important participant for this study. Your experience of using your website and your assistance with facilitating the data collection process are essential to the completion of this study. Your participation is solicited, although your participation is strictly voluntary. I would appreciate 30-45 minutes of your time to conduct an interview with you about your experience of using your website as a supplement for classroom teaching. I would also appreciate your assistance by offering me 10-20 minutes of class time to distribute the questionnaire to your undergraduate students. The nature of questionnaire should cause no more discomfort than everyday life. All data that you provide will be confidential and participants will remain completely anonymous in any future publications from this study. The data will be stored in a locked cabinet in my supervisor office at RMIT University for at least five years as prescribed by RMIT regulations.

If you are in agreement, please sign the attached Consent Form. We thank you for you participation and appreciate your cooperation.

If you have any questions about the project, please feel free to contact me, Aidd Almalki on: Au.Mob:+6142XXXX, S.A.Mob: +966555XXXX or email: S3173198@student.rmit.edu.au or my supervisor Dr David Forrest, by phone: + (61 3) 9925XXXX or email: david.forrest@rmit.edu.au.

Yours sincerely,

Aidd Almalki

سعادة الأخ الدكتور/ .....

السلام عليكم ورحمة الله وبركاته وبعد :

أنا/ عايد بن محمد المالكي ، احد أعضاء هيئة التدريس بجامعة أم القرى – كلية التربية،والمبتعث حاليا لدراسة الدكتوراه باستراليا – جامعة الار ام آ تي . موضوع رسالتي للدكتوراه هو " دمج المواقع التربوية : آثاره على تعلم الطلاب وتفاعلهم ".

يسعدني إخباركم انه عند التقييم المبدئي لصفحات أعضاء هيئة التدريس المتاحة على موقع جامعة أم القرى لهذا الفصل الدراسي ، كان موقعكم الشخصي احد أفضل عشرة مواقع . فنبارك لكم ذلك ونتمنى أن تكون بقية المواقع بنفس الجودة والفعالية في المستقبل إن شاء الله . ولذلك ، يسعدني دعوتكم للمشاركة في هذه الدراسة . بعد موافقتكم ، أتمنى الاستفادة من موقعكم الشخصي في دراسة أراء الطلاب نحو فعالية دمج التعليم الالكتروني.

تهدف هذه الدراسة الي التحقق من فعالية دعم المقررات الدراسية بجامعة ام القرى بمواقع تعليمية على الانترنت. وتحديدا، اثر ذلك الدمج على التعلم والتفاعل لدى الطلاب . بالاضافة ، ستتم دراسة العوامل المؤثرة الاخرى في الاستفادة من الانترنت في التعليم كالعمر والتخصص ونحوها. يتوقع أن تساهم بيانات هذه الدراسة في تطوير وتحسين دمج التعليم الالكتروني في جامعة ام القرى. تشمل هذة الدراسة مجموعة من أعضاء هيئة التدريس بالجامعة وعدد من طلابهم، حيث يكمل الطلاب استبانة خاصة بهذة الدراسة حول أرائهم وخبراتهم في الاستفادة من تطبيقات التعليم الالكتروني في مقرراتهم التقليدية.

خبرتكم في توظيف تقنية الانترنت في التعليم الجامعي من خلال تطوير واستخدام موقعكم الشخصي سيكون لها اكبر الأثر في إنجاح هذه الدراسة . كما أنها ستساهم بإذن الله في تفعيل استخدام الانترنت في التعليم العالي السعودي وفي جامعة أم القرى بالتحديد. موافقتكم على المشاركة تطوعية ، ولكنها غاية في الأهمية .

تتضمن الدراسة القيام بإجراء مقابلات شخصية مع أعضاء هيئة التدريس الذين قاموا بإنشاء وتطوير المواقع المختارة –وهم من كليات وأقسام مختلفة بالجامعة– تستغرق 30- 45 دقيقة ، إضافة إلي توزيع استبيانات على الطلاب أو الطالبات المستفيدين من هذه المواقع - لتوزيع الاستبيانات على الطلاب أتمنى من سعادتكم 10-20 دقيقة من إحدى محاضراتك في نهاية الفصل الدراسي وقبل موعد الاختبارات. حيث سأقوم بنفسي بتوزيعها ومن ثم استلامها منهم. سيتم التعامل مع جميع هذة البيانات بسرية تامة ولن يتم التطرق الي اي بيانات خاصة او شخصية. كما أنها لن تستخدم في دراسات اخرى . سيتم حفظ البيانات في مكان آمن بجامعة (الآر ام آ تي) وذلك لفترة لا تقل عن خمس سنوات حسب تعليمات الجامعة.

أتمنى عند الموافقة الإمضاء على نموذج الموافقة المرفق، مع فائق تقديري لمشاركتكم وتعاونكم .كما يمكنكم عند الرغبة في معرفة المزيد حول هذة الدراسة التواصل معي على جوال رقم 0555006172، او مع المشرف على هذة الدراسة الدكتور ديفد فورست على البريد david.forrest@rmit.edu.au .

وأخيرا تقبل مني خالص الشكر والتقدير،

الباحث / عايد بن محمد المالكي

.

S3173198@student.rmit.edu.au

Appendix G Plain Language Statement

RMIT University

Portfolio: Design & Social Context

School of Education

INVITATION TO PARTICIPATE IN A RESEARCH PROJECT

Dear students,

My name is **Aidd Mohammed Almalki.** I am undertaking a Doctor of Philosophy of Education (PhD) at t RMIT University, School of Education. The title of my research is: '' **The Implementation of Blended Educational Websites: The effects on students' learning and interactions**".

The purpose of this study is to investigate the use of teachers' websites as a supplement for classroom teaching at Umm AlQura University (UQU). It will evaluate the strengths and limitations of the use of teachers' websites. In particular, the study will investigate the effects of the use of these websites on the students' learning and interactions. Some variables that could affect the students' adoption of these websites such as: age, gender, major, computer experience, and prior experience with the Internet will be examined. The information gathered in this study will play a part to develop and implement online instruction at UQU effectively.

You have been selected as a potential and important participant for this study, as your instructor has made a website available online, which has been developed and used as a supplement to the classroom teaching. Your experience of using your instructor's website and responses to the following questionnaire are essential to the completion of this study. Your participation is solicited, although strictly voluntary. The nature of questionnaire should cause no more discomfort than everyday life. Although participation may not benefit you directly, the information that is obtained from this study will help us to understand how to make better use of educational websites in classroom teaching.

The questionnaire is expected to take approximately 10-20 minutes to complete. There is no right or wrong answer. All data that you provide will be confidential and not be used for any purposes other than this study. The data will be stored in a locked cabinet in my supervisor office at RMIT University for at least five years as prescribed by RMIT regulations. Your name will not be associated in any way with the research findings.

If you have any questions about the project, please feel free to contact me, Aidd Almalki on: Au.Mob:+6142171XXXX, S.A.Mob: +966555XXXXXX or email: S3173198@student.rmit.edu.au or my supervisor Dr David Forrest, by phone: + (61 3) 9925 XXXX or email: david.forrest@rmit.edu.au.

If you are in agreement, please sign the attached Consent Form and return with your completed questionnaire to me. We really thank you for you participation and appreciate your cooperation.

Yours sincerely,

Aidd Almalki

Any complaints about your participation in this project may be directed to the Executive Officer, RMIT Human Research Ethics Committee, Research & Innovation, RMIT, GPO Box 2476V, Melbourne, 3001. Details of the complaints procedure are available at: *http://www.rmit.edu.au/rd/hrec_complaints*

RMIT University

Portfolio: Design & Social Context

School of Education

أخي الطالب/ أختي الطالبة ،

السلام عليكم ورحمة الله . أنا الباحث / عايد بن محمد المالكي، اشرع في الحصول على درجة الدكتوراه في الفلسفة التربوية من جامعة الار ام آ تي . موضوع رسالتي للدكتوراه هو " دمج المواقع التربوية : آثاره على تعلم الطلاب وتفاعلهم ".

تهدف هذة الدراسة الي التحقق من فعالية دعم المقررات الدراسية بجامعة ام القرى بمواقع تعليمية على الانترنت. وتحديدا، اثر ذلك الدمج على التعلم والتفاعل لدى الطلاب . بالاضافة ، ستتم دراسة العوامل المؤثرة الاخرى في الاستفادة من الانترنت في التعليم كالعمر والتخصص ونحوها. يتوقع أن تساهم بيانات هذة الدراسة في تطوير وتحسين دمج التعليم الالكتروني في جامعة ام القرى. تشمل هذة الدراسة مجموعة من أعضاء هيئة التدريس بالجامعة وعدد من طلابهم، حيث يكمل الطلاب استبانة خاصة بهذة الدراسة حول أرائهم وخبراتهم في الاستفادة من تطبيقات التعليم الالكتروني في مقرراتهم التقليدية.

لقد تم اختيارك لتكون واحداً من المشاركين المهمين في هذه الدراسة، حيث أن أستاذك في هذا المقرر قام بإنشاء موقع على الإنترنت متاح للاستخدام كمكمل للعملية التعليمية. خبرتك في استخدام هذا الموقع إضافة إلي ملأ الاستبانة ضرورية من أجل نجاح هذه الدراسة. مشاركتك مطلب ، إلا أنها تبقى تطوعية. كما أن المشاركة في هذه الدراسة قد لا تفيدك مباشرة ، ولكن المعلومات والنتائج التي سوف يتم الحصول عليها من هذه الدراسة سوف تساعد أعضاء هيئة التدريس بجامعة أم القرى أو الجامعات الأخرى على فهم الطريقة المثلى للاستفادة من مواقعهم على الإنترنت.

من المتوقع أن تستغرق الاستبانة 10 -- 20 دقيقة لملأ بياناتها. علما أنه لا توجد إجابة صحيحة وأخرى خاطئة. سيتم التعامل مع جميع البيانات بسرية تامة ولن يكون اسمك مرتبطا بنتائج الدراسة، كما أن هذه البيانات لن تستخدم في أي دراسة أخرى. سيتم الاحتفاظ بجميع البيانات بمكتب المشرف المختص بجامعة (RMIT) لديك حرية الانسحاب في أي وقت، ولكن، حيث أن معلوماتك ليست محددة بأي بيان شخصي فإنه يستحيل حذفها من الدراسة لاحقا . على الأقل لمدة خمس سنوات وذلك حسب تعليمات الجامعة .

إذا كانت لديك أي تساؤلات عن الدراسة ، فضلا اتصل بي ، عايد المالكي على
جوال رقم [+61421XXXX (Aus) / +96655XXXXX (S.A)]
أو على البريد الالكتروني s3173198@student.rmit.edu.au

كما يمكنك التحدث إلي المشرف على الرسالة الدكتور ديفيد فورست على تلفون رقم [+613992XXXX]
أو مراسلته على البريد الالكتروني david.forrest@rmit.edu.au

مع خالص شكري وتقديري ،

الباحث / عايد المالكي

يمكن تقديم اي شكوى بخصوص مشاركتكم في هذة الدراسة مباشرة الي العنوان التالي :
Executive Officer, RMIT Human Research Ethics Committee, Research & Innovation, RMIT, GPO Box 2476V, Melbourne, 3001
ولمزيد من التفاصيل عن كيفية التقدم بهذا الطلب ـ يمكن زيارة :
http://www.rmit.edu.au/rd/hrec_complaints.

Appendix H Consent Form for Interviews

RMIT University

Portfolio: Design & Social Context
School of Education

Instructor's Consent Form

Portfolio		Design & Social Context		
School of		Education		
Name of participant:				
Project Title:		The implementation of a blended educational website: the effects on students' learning and interactions.		
Name(s) of investigators:	**(1)**	Aidd Almalki	Phone:	Au.Mob: +61421XXXX S.A Mob: +966555XXXX
	(2)	Dr. David Forrest (Senior Supervisor)	Phone:	Phone: +(61 3) 9925 XXXX Email: david.forrest@rmit.edu.au

1. I have received a statement explaining the interview/questionnaire involved in this project.
2. I consent to participate in the above project, the particulars of which - including details of the interviews or questionnaires - have been explained to me.
3. I authorise the investigator or his or her assistant to interview me or administer a questionnaire.
4. I give my permission to be audio taped ☐ Yes ☐ No
5. I give my permission for my name or identity to be used ☐ Yes ☐ No
6. I acknowledge that:

a) Having read the Plain Language Statement, I agree to the general purpose, methods and demands of the study.

b) I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied.

c) The project is for the purpose of research and/or teaching. It may not be of direct benefit to me. The privacy of the information I provide will be safeguarded. The privacy of the personal information I provide will be safeguarded and only disclosed where I have consented to the disclosure or as required by law. If I participate in a focus group I understand that whilst all participants will be asked to keep the conversation confidential, the researcher cannot guarantee that other participants will do this.

d) The security of the research data is assured during and after completion of the study. The data collected during the study may be published, and a report of the project outcomes will be provided to **Aidd Almalki**. Any information which may be used to identify me will not be used unless I have given my permission (see point 5).

Participant's Consent

Name: _____ Date: _____

(Participant)

Participants should be given a photocopy of this consent form after it has been signed.

Any complaints about your participation in this project may be directed to the Executive Officer, RMIT Human Research Ethics Committee, Research & Innovation, RMIT, GPO Box 2476V, Melbourne, 3001. Details of the complaints procedure are available at: *http://www.rmit.edu.au/rd/hrec_complaints*

Appendix I Research Permission from Umm Al-Qura University

Letter of confirmation

10 August, 2008

This is to certify that our student on scholarship to RMIT University in Australia: Mr. Aidd Almalki has been granted a place to do his field work in preparation for his PhD project in the College of Education, Umm Al-Qura University, Makkah, Saudi Arabia during Semester I of our calendar.

This document has been issued to be presented to whom it may concern at RMIT University, Australia, upon Mr. Malki's request.

Signed by:

Dr. M S Basalamah,
Director general:
Office of scholarships & Inter-University Relations
P.O.Box 715, Makkah, Saudi Arabia.
Tel/Fax: +966 2 556 2515
email:scholar@uqu.edu.sa

المملكة العربية السعودية
وزارة التعليم العالي
جامعة أم القرى

وكيل الجامعة
للدراسات العليا والبحث العلمي

تعميم
لأصحاب السعادة عداء الكليات

سعادة عميد كلية ..... سلمه الله

السلام عليكم ورحمة الله وبركاته وبعد :

تجدون بطيه صورة خطاب سعادة عميد كلية التربية رقم ١/٢٦٤٤ وتاريخ ١٤٢٩/١١/١٨هـ ومشفوعه استبانه الطالب/ عايد بن محمد المالكي ، المبتعث من قسم المناهج وطرق التدريس بكلية التربية إلى استراليا لإكمال دراسته العليا .

وحيث أن الطالب يرغب في تطبيق دراسته التي بعنوان :

(الاستفادة من دمج المواقع التربوية : آثاره على تعلم الطلاب وتفاعلهم)

على مجموعة من أعضاء هيئة التدريس بكليتكم الموقرة .

فآمل التكرم بمساعدته وتسهيل مهمته .

شاكرين ومقدرين دعمكم ومساندتكم لأبنائكم الطلاب .

وتقبلوا خالص تحياتي .

وكيل الجامعة
للدراسات العليا والبحث العلمي
أ.د. غازي بن يحيى دهلوي

امين

The translation of the previous letter

A letter from: Vice chancellor for Graduate Studies and Scientific Research at Umm Al-Qura University to all faculty deans.

Dear dean of faculty,

Upon a request by the dean of College of Education, attached with this letter a copy of student questionnaire that Mr. **Aidd Mohammed Almalki** wants to distribute to some of the university students. Mr. **Almalki** is one of College of Education members at Umm Al-Qura University who is doing his PhD in Australia. His study is about "the implementation of blended educational websites: the effects on students' learning and interactions". The study involves number of the instructors and their students from different faculties. We appreciate your support for the researcher to conduct his study and facilitate his data collection.

Prof. Ghazi Yahya Dahlawi

Vice chancellor for Graduate Studies and Scientific Research

Appendix J Ethics Approval Letter

RMIT University

Human Research Ethics Sub-Committee
ccdel:
Phone: 9925 2974
Fax: 9662 2891
Email: cheryl.deleon@rmit.edu.au

Design and Social Context
Portfolio Office

Building 8, Level 8
360 Swanston Street
Melbourne VIC 3000
Australia

GPO Box 2476V
Melbourne VIC 3001
Australia

Tel. +61 3 9925 2226
Fax +61 3 9663 2891
www.rmit.edu.au

3 July 2008

Mr Aidd Mohammed Almalki
6 Glebe Place
THOMASTOWN. 3074

Dear Mr Almalki,

Re: Human Research Ethics Application – Register Number HREC B-055-05/08

The Design and Social Context Human Research Ethics Sub-Committee at its meeting on July 3, 2008, considered your amended ethics application entitled ***"The implementation of blended educational websites: the effects on students' learning and interaction".***

I am pleased to advise that your application has been approved as Risk Level 2 classification by the committee. This approval will now be reported to the University Human Research Ethics Committee for noting.

This now completes the Ethics procedures. Your ethics approval expires in February 2010.

Please note that all research data should be stored on University Network systems. These systems provide high levels of manageable security and data integrity, can provide secure remote access, are backed on a regular basis and can provide Disaster Recover processes should a large scale incident occur. The use of portable devices such as CDs and memory sticks is valid for archiving, data transport where necessary and some works in progress. The authoritative copy of all current data should reside on appropriate network systems; and the Principal Investigator is responsible for the retention and storage of the original data pertaining to the project for a minimum period of five years.

You are reminded that an Annual /Final report is mandatory and should be forwarded to the Portfolio Ethics Subcommittee Secretary by mid-December 2008. This report is available from: URL: http://www.rmit.edu.au/rd/hrec_apply

Should you have any queries regarding your application please seek advice from the Chair of the sub-committee Associate Professor Heather Fehring on (03) 9925 7840, heather.fehring@rmit.edu.au or contact Cheryl de Leon on (03) 9925 2974 or email cheryl.deleon@rmit.edu.au

I wish you well in your research.

Yours sincerely

CHERYL C DE LEON
Secretary
DSC Human Research Ethics Sub-Committee

cc: A/Prof David Forrest, School of Education

Appendix K Verification of Translation

Rania Soufi
Translator/ Interpreter Level 3
NAATI NO: 60167
ABN 59 348 231 979

PO Box 58 Reservoir Vic 3073
Mobile: 0401276508
E-mail: rania73s@yahoo.com.au

9-5-2011

To Whom It May Concern

Please be advised, that I, Rania Soufi, a NAATI* accredited translator whose details appear above, have undertaken the translation of Mr. Aidd Mohammed Almalki's data and research tools related to his study in RMIT, in Australia.

Yours Sincerely,

Rania Soufi

*** The National Accreditation Authority for Translators and Interpreters**